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ORIGINAL ARTICLES.

THE PRACTICAL EMPLOYMENT OF HELIO- THERAPY IN SURGICAL TUBERCULOSIS OCCURRING IN CHILDREN.¹

By H. J. GAUVAIN,

M.A., B.C. (CANTAB.),

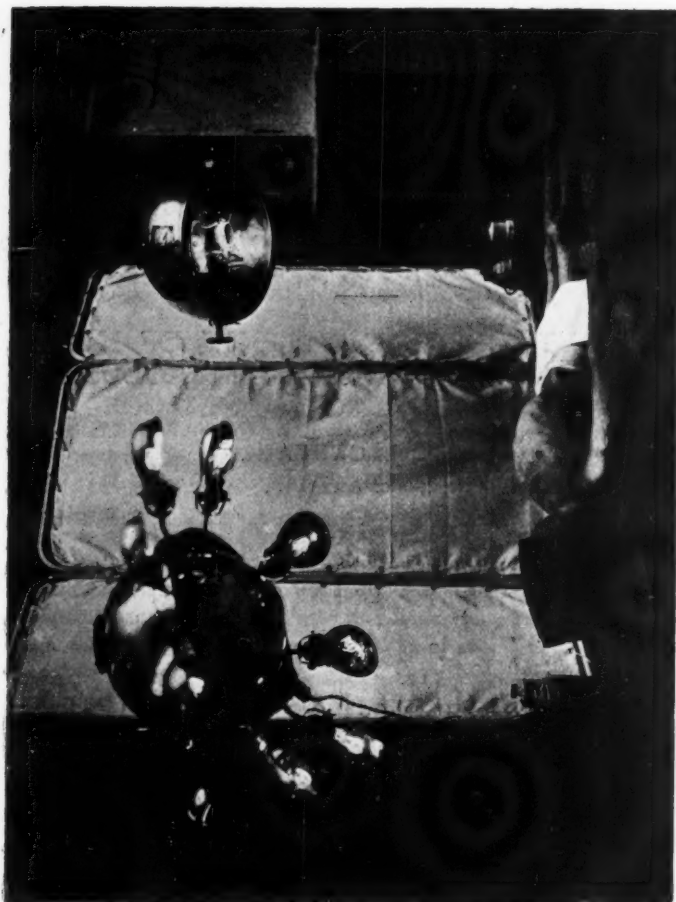
Medical Superintendent, Lord Mayor Treloar Cripples' Hospital, Alton, Hants.

SINCE Rollier published his first enthusiastic papers on heliotherapy as an important adjuvant method of treatment for tuberculous subjects, each summer has found an increasing number of physicians employing heliotherapeutic measures in their practice, and particularly amongst those who work exclusively or chiefly amongst tuberculous patients. I do not propose in this short article to discuss the theories which have been promulgated as to the effect of sunlight on normal and morbid tissues, but will content myself by briefly describing the methods employed at the Lord Mayor Treloar Hospital for Cripple and Tuberculous Children at Alton, and I propose to attempt a general impression conveyed by the results achieved.

In the first place, it may be stated quite emphatically that some of the extravagant claims made as to the value of sun treatment cannot be substantiated. Sunlight alone is not sufficient for the cure of the majority of the more severe types of tuberculous disease. Rather should it be regarded as an important adjuvant treatment to be

¹ This article is based on a preliminary report on observations and experiments carried out with the aid of a grant from the Local Government Board for England and Wales.

employed with care and discrimination. In certain cases its application is attended, not only without benefit, but with actual danger. Investigation has led many to believe that the solar rays which have the greatest therapeutic value are the ultra-violet. These rays have a



APPARATUS FOR THE APPLICATION OF ARTIFICIAL HELIOTHERAPY AS USED AT ALTON.

very limited penetrating power, and because their penetrative power is so limited some deny that they can have effect on deep-seated lesions, which they cannot possibly reach. That is an entirely false inference. Though ultra-violet rays cannot penetrate deeply into the tissues, and directly act on, say, a spinal lesion, indirectly

they are able to exercise an important effect which may be highly beneficial.

Briefly summarized, it may be said that sunlight appears to act as follows: On the local lesions—*e.g.*, a tuberculous ulcer—it has at first a direct effect. Superficial micro-organisms are destroyed or inhibited by the sterilizing action of the light-waves, and this action is assisted, within limits, by the inflammatory response which results from a reasonable exposure to strong sunlight. Harmful effects are produced if the exposure be unduly prolonged, because the local inflammation may proceed towards a local necrosis. Properly graduated local exposure of a tuberculous lesion—*e.g.*, an ulcer or a patch of lupus—frequently produces rapid superficial healing; but the repair may be superficial only—as, for example, when tuberculous nodules in the depths of the lesion have not been destroyed.

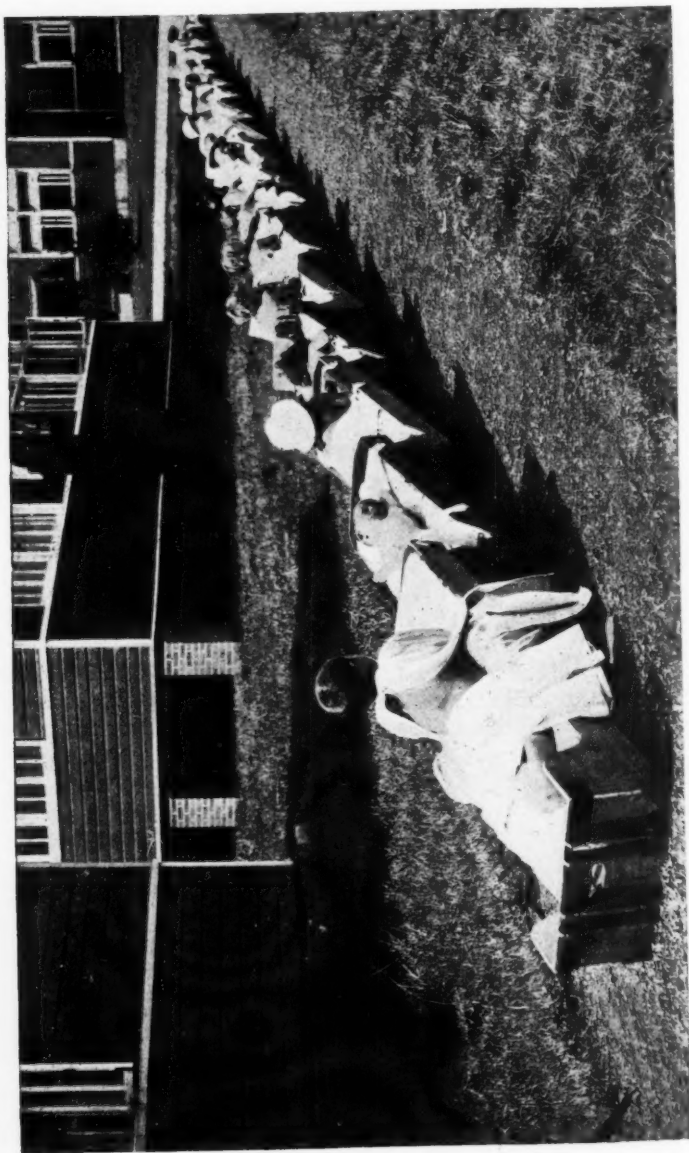
Some observers appear to think that the more intense the ultra-violet light applied, and the farther the rays extend beyond the visible spectrum, the more beneficial will be the result of treatment. This idea, attractive though it appears, is probably erroneous,¹ and certain practical physicians—*e.g.*, Martin Du Pan²—are in the habit of filtering the light to cut off short-waved rays. The trend of the results of reliable research at present appears to be largely concentrated on obtaining effects from powerful sources of ultra-violet light—in other words, in obtaining effects by the direct therapeutic action of light rays, and ignoring what, in my opinion, is of equal, and indeed greater, value, the remote effects. The Simpson and other tungsten arc lamps are examples of apparatus designed to this end, and are chiefly used for the treatment of local lesions. Of the ultimate effect which may be produced by some of the rays we are at present ignorant. Such contrivances should be employed with caution. Their direct bactericidal action is undoubted, but over-exposure will result in necrotic changes without compensating remote benefit. At Alton, as an artificial source of ultra-violet light, I use three Hanau lamps singly or in combination. These are mercury vapour lamps in quartz containers, and are a powerful and valuable source of ultra-violet light. They are useful in numerous conditions besides tuberculosis, particularly in dealing with such skin eruptions as acne and various forms of eczema, etc.³

To turn to a consideration of the effects of natural sunlight. Pure sunlight, in addition to the direct effects already alluded to, has beneficial remote effects, when carefully administered in suitably selected cases. The remote beneficial effects of natural sunlight appear to be

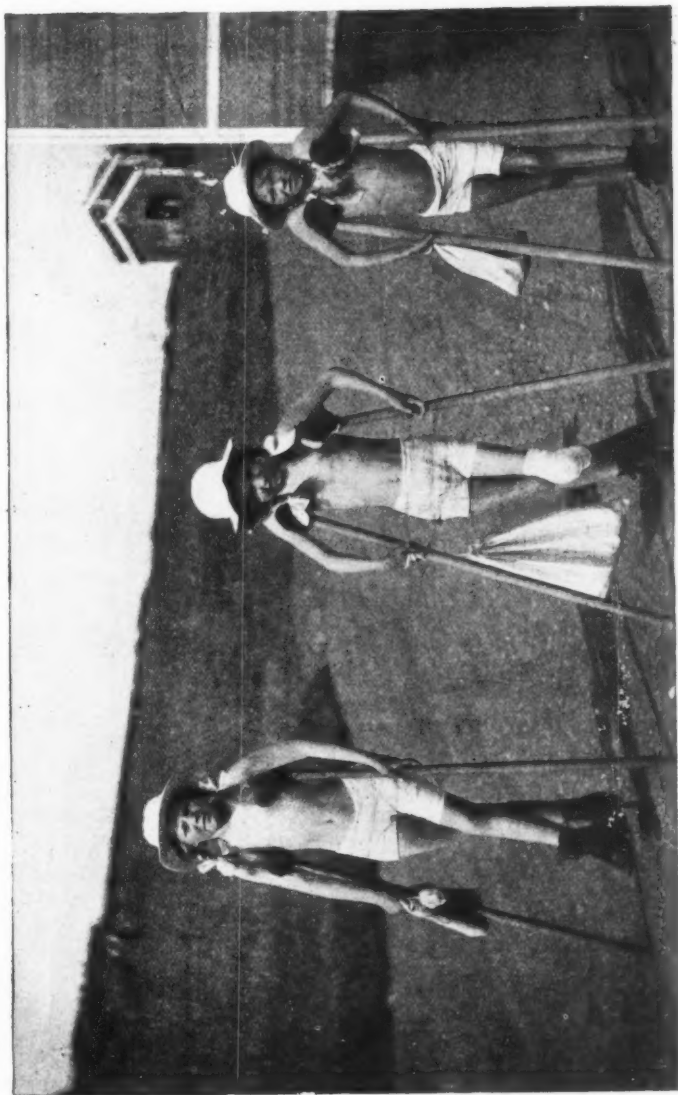
¹ Nogier: "Les Bases scientifique de la thérapeutique par la Lumière," *Avenir Médical*, 1913.

² Ch. Martin Du Pan: "L'Heliothérapie artificielle avec la Lampe de Vignard," *Revue Médicale de la Suisse Romande*, September 20, 1914.

³ Gauvain and De Voss: "Heliotherapy in Surgical Tuberculosis," *BRITISH JOURNAL OF TUBERCULOSIS*, April, 1914.



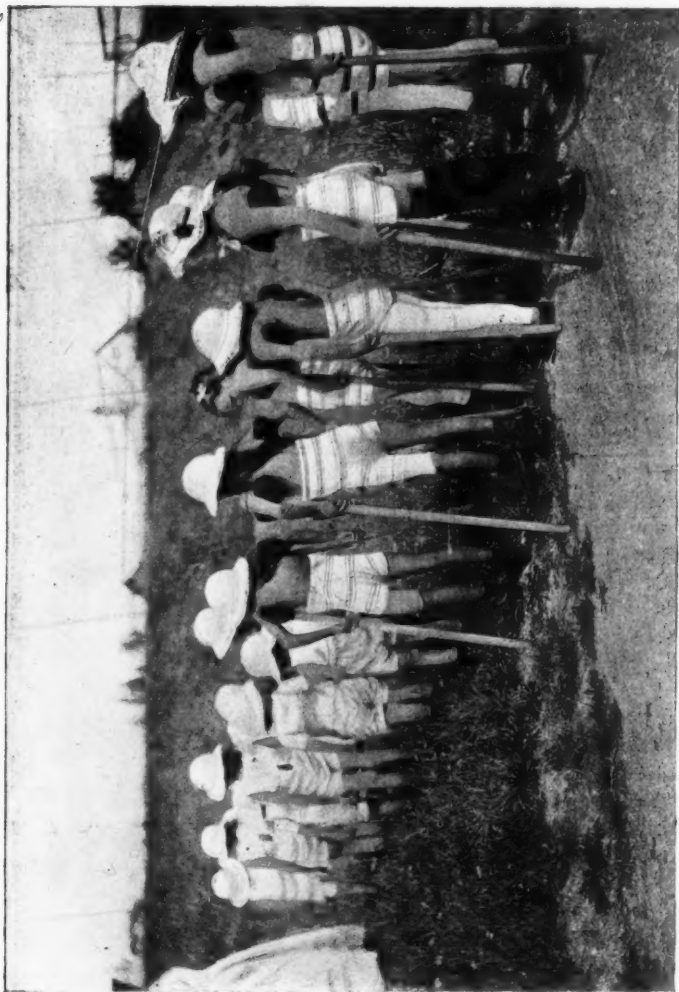
CHILDREN WITH TUBERCULOUS DISEASE OF THE SPINE UNDERGOING SUN TREATMENT AT ALTON.



THREE LITTLE MAIDS AT ALTON UNDERGOING HELIO THERAPY: ON THE WAY TO SCHOOL.

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superior to those from artificial sources, but by the careful combination of suitable artificial light, together with properly graduated exposure to natural sunlight, the best results may, as a rule, be anticipated.



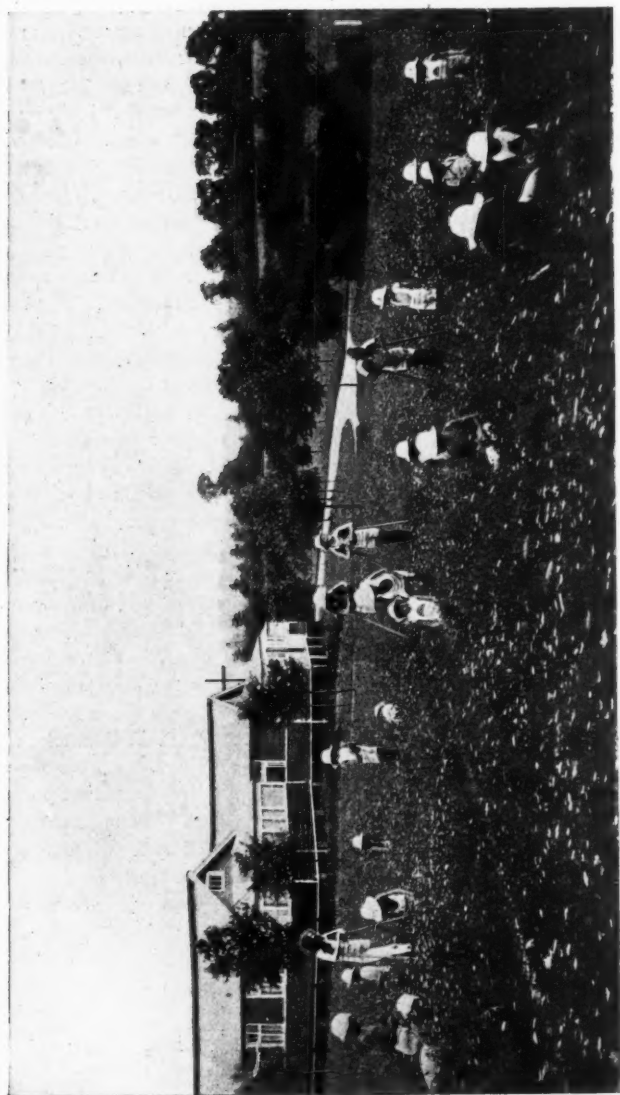
TUBERCULOUS CHILDREN ON THE MARCH AT ALTON: NATURE STUDY AND SUN TREATMENT.

The ease of dosage of artificial light, and the certainty with which particular rays may be applied, renders artificial light particularly valuable for the direct and local action on any superficial lesion. It

must be remembered, however, that tuberculosis can be most properly described, not as a local, but as a general or constitutional disease; and regarded as such, the more remote effects of sunlight may be reasonably anticipated to be likely to be more important in producing its arrest. Exposure of a normal individual to the sun and air produces skin pigmentation. Some assert that this pigmentation is due to the effect of ultra-violet rays. To that view I am opposed. Ultra-violet light undoubtedly has an important effect in producing pigmentation, but other factors are essential. If ultra-violet light, or, indeed, any light rays, were the sole factors in the production of pigmentation, then exposure to suitable artificial light would certainly produce pigmentation, and the degree of pigmentation would bear some relationship to the amount of exposure. That, however, is not the case. Pigmentation is often only produced with difficulty by exposure to artificial light. It is much more easily produced by exposure to natural sunlight, but in some individuals even exposure to sunlight will not produce pigmentation. Fresh air combined with sunlight assists in the production of pigmentation, but the essential factor is the power possessed by the individual, and which varies in different individuals to an extraordinary degree: in some it is absent entirely. Such individuals exposed may react to the extent of having marked *erythema solare*, and may blister; and there may even develop symptoms of sunstroke, but without pigmentation. Rollier attaches great importance to pigmentation. He asserts that skin pigmentation is the result of exposure to ultra-violet rays, and suggests that their energy is absorbed and transformed into chemical energy, which effects the deposition of pigment. I would rather suggest that the deposition of pigment in the skin is the result of the action of light plus some property possessed by individuals in widely varying degree. One thing I regard as certain—namely, that, until pigmentation is established, what I have called the remote benefits of sunlight cannot be fully obtained.¹ It therefore follows that patients who will not pigment are unlikely to be benefited by exposure to the sun's rays, except in so far as they may be affected by the direct or local action of sunlight on some superficial lesion.

Sandy-haired patients who freckle much, as a rule, pigment with great difficulty; but this lack of pigmenting power is by no means confined to these, and may, indeed, occur in any patient. Certain septic cases pigment with great difficulty, and sometimes will not pigment at all. In these patients, then, who lack pigmenting power, exposure to sunlight for its remote beneficial effect appears to be useless. While it appears to be essential that a patient must pigment before he derives constitutional benefit from sun-treatment—and, indeed, such benefit often has a direct relationship to pigmentation—nevertheless that is not

¹ Gauvain: *Lancet*, 1914, vol. xi., p. 195.



NATURE STUDY AND SUN TREATMENT AT ALTON.

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invariably the case, and certain patients who pigment well do not necessarily make material progress. It therefore appears that sun



CHILDREN AT ALTON UNDERGOING SUN TREATMENT AND AT THE SAME TIME ENJOYING
HANDWORK INSTRUCTION.

treatment in a pigmented patient is frequently able to elicit a favourable response, but that this response depends on some other factor as well,

which is not necessarily, though very frequently, present. The general conclusions at present arrived at are as follows: (1) That general sun treatment is only of value when it produces pigmentation; (2) that pigmentation only is not sufficient to produce improvement, but is a medium through which improvement is obtained; (3) that in pigmented patients improving under sun treatment, the degree of improvement bears a certain relationship to the amount of pigmentation.

In patients who will not pigment, even when the clinical lesion detected is not considerable, the ultimate prognosis is not so good as in patients who do pigment. Here a further observation may be noted. Not infrequently I have observed patients, who have not pigmented, even though the disease appears to be quiescent, will later develop an abscess or a new tuberculous lesion elsewhere. The successful aspiration of the abscess or the healing of the new lesion is then frequently followed by the acquirement of pigmenting power. The appearance of pigmentation is thus often an excellent prognostic sign, and may be associated with rapid amelioration of the tuberculous disease. If pigmentation does not appear under these circumstances, further extension of the disease is probable, though that extension may be very long delayed. This has an important bearing on the line of treatment to be adopted. A patient in whom all clinical signs of activity of the disease have vanished, but who remains cachectic, should only be discharged if his guardians are advised that a relapse is extremely probable, and that it is essential that he should remain under constant skilled observation, even though no active treatment is immediately indicated.

The most marked outward benefit of successful insolation is the extraordinary tonic effects which usually accrue. The skin has other functions besides that of elimination. It has an absorptive potentiality. Apart from the absorption of oxygen, the absorptive capacity of the skin in helio- and aero-therapy is very great, though as yet only partially estimated with any degree of exactness. With successful insolation, there is said to be a multiplication of erythrocytes and an increase in hæmoglobin. According to Bardenheuer, there is a marked total increase in the leucocytes, in mild "closed" cases of tuberculosis the figure being typically 13,000.

Rollier has investigated the effect of light on the vital processes of respiration and circulation, and asserts that the psychological condition is greatly improved through the sun's genial influence, and the body acquires a greater working capacity. Locally, the beneficial effects of heliotherapy are most marked in sinus cases successfully treated, and in the improvement in movement found in many joint cases previously fixed by fibrous ankylosis. Sinuses which heal after insolation tend to possess supple scars with a minimum of keloid.¹

¹ Willis Campbell: "General Heliotherapy in the Treatment of Bone and Joint Affections; Report of Cases," *American Journal of Orthopaedic Surgery*, April, 1916.

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Finally a word must be added regarding the application of sun treatment. Insolation must be undertaken with those precautions which are dictated by common sense. In institutions where the patients remain under constant observation, it is easier to draw up simple rules for the guidance of an intelligent and responsible Sister. Appended is a copy of the rules issued to the Sisters at Alton for guidance on sunny days from Easter until October, after which date only special patients are exposed. These rules, of course, do not apply for artificial heliotherapy, and must be frequently modified for particular patients, and their observance will largely depend upon continuance of favourable climatic conditions.

INSTRUCTIONS TO NURSES AND OTHERS FOR GUIDANCE IN THE CONDUCT OF SUN TREATMENT.

The great object for those undertaking sun treatment is to secure pigmentation, and it is most desirable to obtain pigmentation as speedily as possible. Therefore every available moment of sunshine should be made use of, provided that the patient is not thereby endangered.

The following rules should be strictly, but with reason, observed :

1. The patient's head must always be protected.
2. The patient should never be allowed to become too cold or too hot.
3. In commencing treatment, on the first day the legs to the knees may be exposed hourly for five minutes. If that is tolerated well, on the second day exposure to the knees may last for ten minutes hourly. On the third day, exposure to the thighs for ten minutes hourly is permissible. On the fourth day, similar exposure for fifteen minutes hourly should be tried. On the fifth day, exposure to the thighs for fifteen minutes and of the body for five minutes hourly is desirable. On the sixth day, exposure to the thighs for fifteen minutes and of the body for ten minutes hourly may be attempted. Periods of exposure may then, if the patient is pigmenting, be gradually increased until the patient may be completely exposed for increasing periods, and eventually, when pigmentation is fully established, continual exposure may be undertaken whenever sunshine is available.
4. Blistering must be most carefully avoided.
5. In any case when the patient's evening temperature exceeds 100° F., the patient should not be exposed the following day unless special orders are given.
6. Sinuses should be exposed as long as can be arranged and whenever possible, and any purulent discharge from them must be immediately swabbed. If there are flies about, or it is windy and there is any dust, sinuses must be touched at frequent intervals with a little iodine.
7. A nurse must be on duty the whole time while patients are having sun treatment, and must never leave them under any circumstances whatever.

Certain cases will be found in which these rules cannot be rigidly followed, and less exposure is called for or more exposure may be tolerated. Individual instructions will be specially given for these cases. The observance of these instructions is most important ; if intelligently carried out, they should result in great benefit to the patients.

HELIO THERAPY FOR TUBERCULOSIS IN NORWAY.

By WILLIAM HOLMBOE,

M.D.,

Medical Superintendent of Mesnaliens Sanatorium, near Lillehammer, Norway.

ROLLIER'S methods for the application of heliotherapy for surgical tuberculosis have gained general recognition for this therapeutic measure. Rollier has also used sunlight in the treatment of cases of pulmonary tuberculosis, but so far his records regarding the value of heliotherapy in this form of tuberculosis are few and indefinite. For a long time I have been convinced that in Norway we can offer climatic conditions equal to those in the Alps of Switzerland and the mountain districts of South France. We have high mountain districts, with their well-known climatic advantages: rarefied air free from dust and bacteria, a low barometer pressure, plenty of sunshine with high actinic powers, abundance of snow, which covers the mountains for from seven to eight months of the year, and which quantitatively increases the amount of the reflected ultra-violet light. However, Norway's situation so far north of course causes a much lower temperature of the air than is usually met with in centres more southerly situated, such as the Alps, and this circumstance has for a long time appeared to me to be a hindrance to the utilization of sun-baths.

In this article I desire to summarize our experience in regard to heliotherapeutic measures in Norway. The attempts which we have been able to make with sun-baths at Mesnaliens Sanatorium since 1915 have taught us that excellent results may be attained without any fear of detrimental effects. Mesnaliens Sanatorium is situated on the mountain ridge between Gudbrandsdalen and Osterdalen, two of the largest valleys in Norway. The altitude is 1,800 feet above sea-level, and it is thus a station in the subalpine zone. Snow covers the ground from October to May. During the winter months abundance of sunshine is experienced with calm weather. The temperature of the air averages $\div 5^{\circ}$ C. to $\div 10^{\circ}$ C. in the winter, with occasional severe frosts for a few days, when the thermometer may fall to $\div 30^{\circ}$ C. In the summer a pleasant warm temperature usually exists, which very seldom causes any inconvenience.

The sanatorium receives only cases of pulmonary tuberculosis, and by preference patients in early stages and with limited lesions. But, as in most other sanatoria, there are usually some third stage cases under treatment. During the months of December and January sun-baths in the open air cannot be profitably employed, as the temperature,

as a rule, is too low and the sun not high enough above the horizon. During these months sun-baths can only be employed in closed and heated verandas. During the other months of the year sun-baths have been used at Mesnaliens regardless of the temperature of the air. The temperature has been systematically recorded of the air as well as of the sun-rays. The first is taken in the shade with ordinary mercurial instruments, the latter with a so-called "isolation thermometer," a mercurial thermometer enclosed in a vacuum glass holder and with mercury blackened. The isolation thermometer records only the heat of the sun's rays, regardless of the temperature of the surrounding air. Records may here be given of some temperatures taken at noon:

	<i>Temperature taken in the Sun.</i>			<i>Temperature taken in the Shade.</i>		
February 26	...	+57.5° C.	...	...	÷ 2.5° C.	
March 2	...	+67.5° C.	...	...	÷ 1.8° C.	
" 8	...	+66.0° C.	...	...	÷ 10.8° C.	
April 11	...	+66.0° C.	...	...	+18.0° C.	
" 18	...	+68.0° C.	...	...	+ 7.5° C.	

In the month of May the temperature of the sun never falls below +40° C., and the maximum temperature in June is +70° C. The lowest recorded temperature during the months of February to November was +34.5° C.

Our experience has proved that, by carefully and gradually getting pulmonary patients accustomed to the baths, all inconvenience can be avoided. Patients lie nude in an open veranda, with a temperature of ÷ 10.8 C. The sun has been so warm that sun-bath by this temperature has been an enjoyment. One of the main conditions is absolute stillness of the air. It is essential that patients shall be protected carefully against all wind and moving air.

The year of 1915 has, in respect to climatic conditions, been a very poor year for sunshine, and so has made our trial a somewhat severe one. However, in spite of this, it has been recorded at the sanatorium that we had 150 sunny days out of 319.

In regard to the introduction of sun-baths at Mesnaliens Sanatorium, the methods of Rollier have for the most part been closely followed. The patients gradually get accustomed to the exposure. At first only the feet are subjected to the direct sunlight, then the exposure is made up to the knees, then up to the abdomen, and not till after the lapse of at least eight days is the entire body exposed to the rays of the sun. The time of exposure is increased gradually, until the most sun-burnt patients can enjoy the sun-bath for from four to five hours daily. The sexes are, of course, separated, each on their respective balconies. For protection for the head straw hats or small sunshades are used; for

the safeguarding of the eyes sun-spectacles with yellow-brown glasses are worn.

Our experiments have proved that sun-baths, as a rule, are well borne by patients with pulmonary tuberculosis. The contra-indications against the application of these heliotherapeutic measures have grown



PATIENTS UNDERGOING TREATMENT WITH ULTRA-VIOLET RAYS AT MESNALIEN
SANATORIUM.

Above each patient is placed a powerful arc lamp.

less and less. Patients with a tendency to pulmonary hæmorrhages have been excluded as we have proceeded; but as greater experience is gained about the influence of sun-baths on the pressure of the blood, it may probably also become apparent that our fear for this class of case has been exaggerated. Slight cases of fever have not been considered unsuitable, but with marked febrile cases great caution is necessary. Fever as a direct cause of sun-bath has not been noted,

Rollier excludes all advanced cases of pulmonary tuberculosis from the use of sun-bath. Some advanced cases have, however, had sun-bath at Mesnaliens, and without injury, detriment, or discomfort.

No case of injury to the patient by sun-bath has been observed; but as concerning the permanent advantage of the treatment nothing definitely can be stated, considering the very short time it has been used. What can be stated up to the present is as follows: The patients have without exception all enjoyed the sun-bath. The influence on the subjective state of health is so striking that it must be included as a psychical point of great significance. As to the appetite, the sun-bath has unquestionably a very stimulating influence. This is stated by all patients without exception. A slight increase in the pulse-rate has been observed as a rule. The temperature of the body taken during and immediately after the sun-bath has never shown any increase. Some patients claim that they sleep better after the sun-baths.

The influence on the skin from sun-bath is well known, and by carefully and gradually getting accustomed to it the irritating erythema and other inflammatory conditions which readily arise may be avoided. After a slight erythema, with light desquamation, the skin acquires an ever-increasing pigmentation, which in extreme cases can reach a dark chocolate colour. Patients of both sexes seem to stand the treatment equally well. Anæmic subjects must be dealt with very cautiously, and only very slowly can the treatment be increased. It seems as if very pronounced anæmia is an obstacle against the formation of pigment.

In this connection it is noteworthy that lately there has been introduced, as a substitute for sun-treatment in sunless periods, exposure to ultra-violet rays produced by powerful arc-lights. In a for the purpose especially erected light-bath the patients are reclining in comfortable resting-chairs up to two hours daily, exposed to the rays from these arc-lights. The visible effect is the same as with the natural sun-bath. After a few hours the erythema appears, followed by the pigment formation on the skin. The patients get used to the bath, just as they do in the case of the sun-bath, by degrees. The patients much enjoy the treatment, and febrile patients can be treated with caution.

At present four large arc-lights are in operation at Mesnaliens, under which the patients recline at a distance of about 50 centimetres from the lamp.

As regards the ultimate effect of sun-baths and light-baths, it is too early for any declaration to be made as to the direct influence on the pulmonary tuberculous lesions. Larger experience must be gained before any positive statement can be made. This communication must therefore be regarded only as a preliminary one.

A NOTE ON THE DERBYSHIRE SANATORIUM.

By SIDNEY BARWISE,

M.D., B.SC.,

County Medical Officer of Health for Derbyshire.

IN the past sanatoria have been erected in surroundings and on sites which, although ideal, are widely different from those to which the working-class patient must revert when the period of treatment is concluded. The result is that, although he may do very well in such an institution, on his return home he is depressed and disheartened by the great change, and comes to regard as an impossible ideal any attempt to remodel his domestic life on sanatorium lines. Bearing all this in mind, the Derbyshire County Council have erected their sanatorium on the outskirts of Chesterfield, a mile and a half from the centre of the town. The site slopes to the south, and is about 400 feet above Ordnance Datum. On admission the patient is placed in a single-bedded ward, where the open window space can be regulated, and in winter the apartment may be heated. He is next removed to a double-bedded ward, with no heating and less completely protected from winds. Finally he is allowed a place in the open-air pavilions. It is intended subsequently to provide open-air shelters similar to those available for home use, in which he may be taught to live before leaving.

The sanatorium consists of two pavilions, each containing fifty beds, one for males and one for females. Each pavilion has its own dining-room, with twenty-five beds arranged on each side of it. A doctor's house, an administrative block, and a nurses' home, are also provided. The administrative block is built in the shape of the letter T. The top part of the T consists of a single row of rooms occupied by the nurses; the stem of the T is occupied by the domestic staff, while the junction of the horizontal and vertical limbs has only one story, it being a kitchen. In this way no smell of cooking enters the building. There is a detached laundry and steam disinfectory, and there are two workshops, one for males and one for females. The special points of the sanatorium are—(1) The concrete floors throughout the patients' pavilions; (2) the absence of any attempt to heat the open-air pavilions; (3) the system of heating the open-air dining-rooms by means of a slightly warmed floor. To heat the dining-rooms the hot-water pipes have been enclosed under a concrete floor. The result of this is that the whole of the concrete gradually becomes warm up to a temperature of about 60°, and every unit of heat is utilized. The scheme is a great success. One essential for its adoption is that the floor must be above the level of the

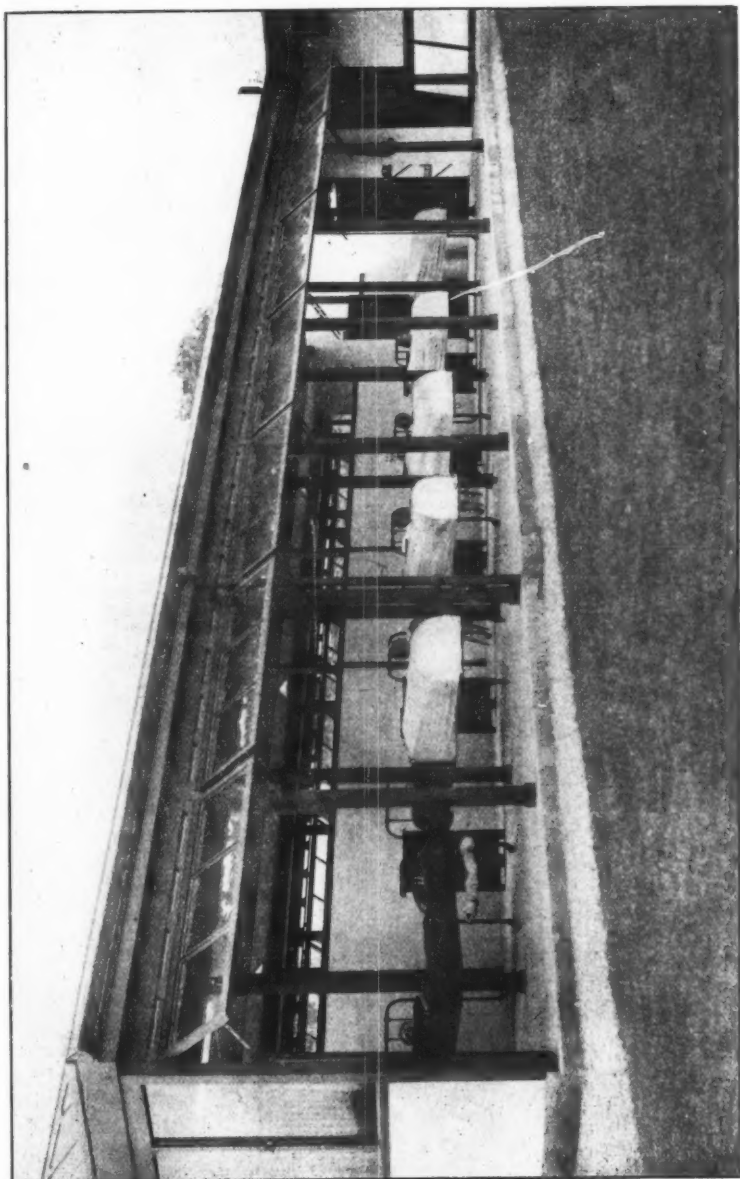


FIG. 1.—THE DERBYSHIRE SANATORIUM : ONE SIDE OF AN OPEN-AIR PAVILION, SHOWING PATIENTS IN BED WITH PROTECTIVE CANOPIES OVER THE PATIENTS' FEET.



FIG. 2.—THE DERBYSHIRE SANATORIUM: SINGLE ROOMS WITH PATIENTS RECLINING ON REST-CHAIRS.

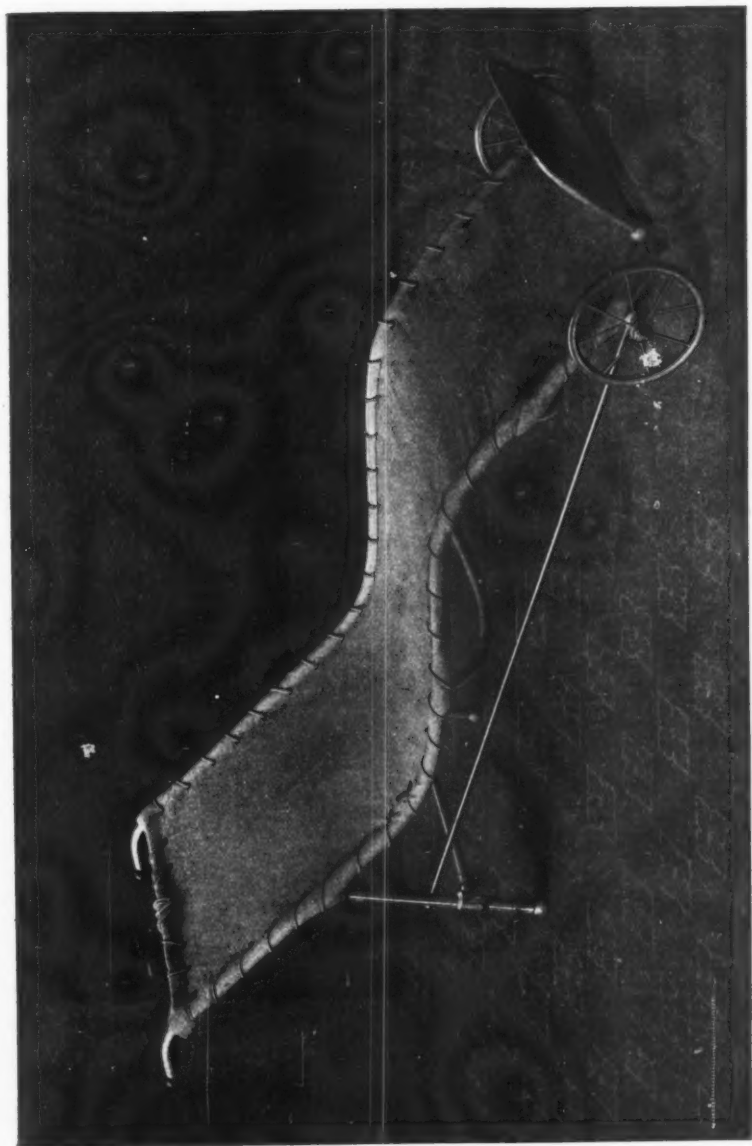


FIG. 3.—THE BARWISE REST-CHAIR.

This novel form of wheel hammock is manufactured by the Smith and Cartwright Bedstead Company, Limited, Hertford Street, Balsall Heath, Birmingham, and is in use at the Derbyshire Sanatorium.



FIG. 4.—THE BARWISE SANATORIUM BED, ADOPTED BY THE DERBYSHIRE COUNTY COUNCIL. Manufactured by the Smith and Cartwright Bedstead Company, Ltd., Birmingham. The waterproof cover over the lower half of the bed enables the bed to be used on an open veranda without the bed-clothes becoming wet, and also keeps the patient warm and dry. The screen can be put up or taken down in half a minute.

ground, and there must be no subsoil water, otherwise the heat would be wasted in its evaporation. Fig. 1 shows one of the open-air pavilions with the patients in their beds, with protective canopies over their feet. These bed-canopies are lifted over the bottom half of the beds, and keep the patients dry and warm in the severest weather. They were employed through the whole of the past winter, and the patients who used them stated that the canopies were better than two hot-water bottles. When not required, the sides of the canopy are pulled out, the arms folded in, and the canopy rolled up and placed in the rest at the bottom of the bed.

The patients have been provided with rest-chairs on wheels. These are easily moved about, and are practically lateral suspension hammocks, the sides being bent at such an angle as to give the greatest comfort and rest. In Fig. 2 a number of the female patients are seen reclining in the rest-chairs in front of the single rooms, while Fig. 3 shows one of the rest-chairs in detail. The canvas, as will be noted, can be easily removed for washing and disinfecting. Both the canopy-beds and the rest-chairs have been patented, and are made by the Smith-Cartwright Bedstead Company, of Birmingham. The details of the canopy-bed are shown in Fig. 4.

The total cost of the sanatorium, including land, furnishing, and equipment, was nearly £22,000, or £220 per bed. The buildings themselves cost £120 per bed. The whole building reflects the greatest credit on the architects, Messrs. W. H. Ward, of Birmingham. It is one of the cheapest sanatoria yet erected, and at the same time I think it is in advance of any sanatorium I have seen.

lower half of the bed enables the bed to be used on an open veranda without the bed-clothes becoming wet, and also keeps the patient warm and dry. The screen can be put up or taken down in half a minute.

INSTITUTIONS FOR THE TUBERCULOUS.

TUBERCULOSIS PAVILION, MILL LANE HOSPITAL, WALLASEY.

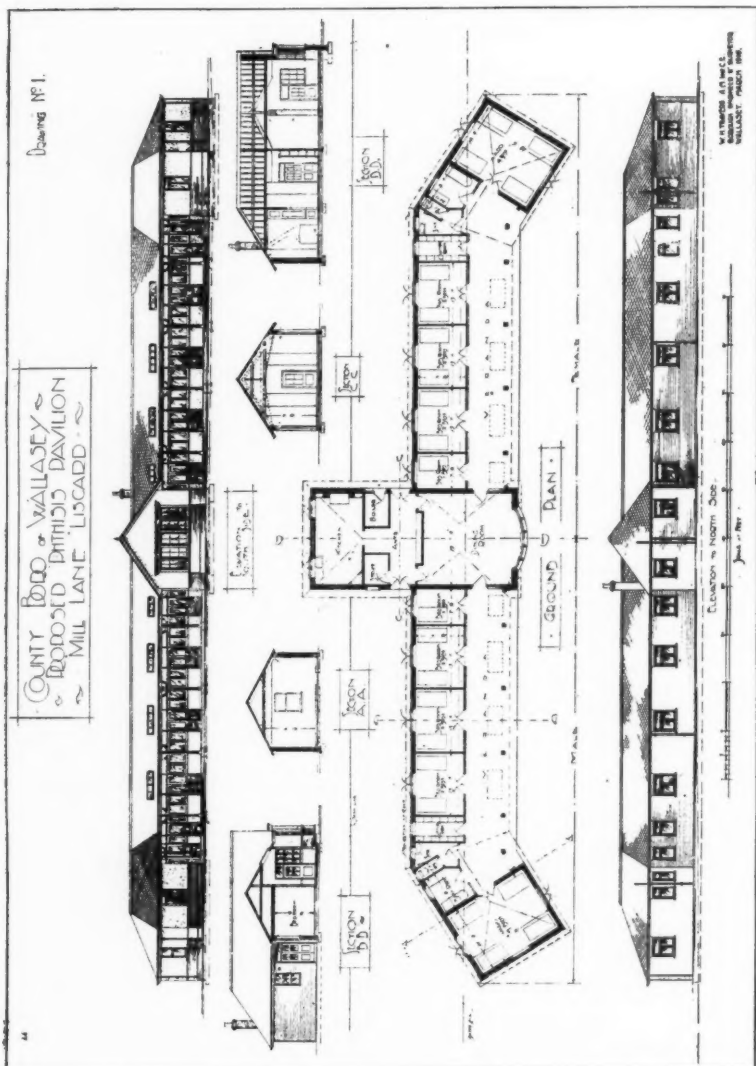
AN excellent and most economic pavilion for tuberculous cases has recently been completed by the County Borough of Wallasey, Cheshire, in connection with the Mill Lane Hospital. Through the courtesy of Dr. T. W. Naylor Barlow, the Medical Officer of Health, we are enabled to give an illustration and block plan of the new pavilion. It may well serve as a model for other public health authorities. The pavilion has been erected within the enclosed grounds of Mill Lane Infectious Diseases Hospital. It has a south aspect, and there are about 3 acres of open ground in front. It is one story in height, and possesses the following accommodation: Two four-bedded wards, six two-bedded wards, two single-bedded wards. Of these, eleven are for males and a similar number for females. The dining-room, which is 20 feet by 19 feet, is situated in the centre of the block, the kitchen being at the rear. A bath-room, which is supplied with hot water, and a lavatory are placed at either end. The bath-rooms and the lavatories are lined half-way up with tiles. The front walls are framed in timber above dado height and fitted with a pair of doors, with windows on either side opening to the full extent of the frame. The space above the doors and windows is made to be permanently open. The centre of the rear wall of each ward is provided with two large case-ment windows, each opening the full width of the frame with a hinged glass opening the full width of the window above. (See gable in the accompanying illustration.) There is a broad veranda with roof lights along the front of the building on each side of the dining-room. The floors are of 6-inch concrete, with granolithic finish. The external walls are of 9-inch brickwork, with 2-inch cavity and galvanized iron wall ties. The walls under the veranda are of $4\frac{1}{2}$ -inch brickwork, and the internal division walls consist of concrete slabs, with brick on edge, 3 inches thick. The roof is of red asbestos slates. The dining-room and two single-bedded wards are heated with hot water, which is supplied by a low-pressure boiler, which also supplies the hot water for the baths and hand-basins. The building contract was £1,806, and the cost of furnishing £400. The outlay on the building, exclusive of furniture, is equivalent to £82 per bed. The pavilion was erected by Messrs. Duthie and Sons, of Liverpool, from plans drawn by the Borough Engineer and Surveyor, Mr. W. H. Travers. The general principles and provisions to be made were settled by the Medical Officer of Health, Dr. T. W. N. Barlow, with the approval of the Local Government Board. The block differs from the suggested plans



PHTHISIS PAVILION · WALLASEY ·

TUBERCULOSIS PAVILION, MILL LANE HOSPITAL, WALLASEY.

of the Local Government Board in that (1) the wings are placed at an angle from the central dining-room, and (2) by the provision of two



four-bedded wards at either end. These modifications were necessitated by lack of available space.

NOTICES OF BOOKS.

A TUBERCULOSIS PIONEER.

EDWARD LIVINGSTON TRUDEAU will always have a foremost place among pioneers in the scientific study and rational management of tuberculosis. Trudeau died in his home at Saranac Lake on November 14, 1915. His closing days were devoted to the writing of a record of his life and work.¹ This autobiography has recently been published, and should be read by every man and woman interested in the tuberculosis movement. It is a fascinating volume, simple, direct, picturesque, and breathing throughout the spirit of a humble Christian, an enthusiastic lover of nature, a keen hunter, a devoted husband and father, and a most lovable personality. For the greater part of his life Trudeau fought with indomitable courage the fell disease tuberculosis, which early in life claimed him as its victim. But though heavily handicapped, often seriously ill and buffeted with tribulations, he nobly won through, and his name is honoured throughout the civilized world. The wonderful colony at Saranac Lake remains as a lasting monument to his vision, industry, and unconquerable soul. In all his long struggle he was gallantly supported by his faithful, patient, and wise wife. The book is an inspiration. We earnestly commend it to all doctors engaged in tuberculosis work, to all laymen responsible in any way for the conduct of sanatoria and other institutions for the tuberculous and the provision of means for carrying on research work, and to all patients who are putting up a real fight against the great enemy. Space forbids our attempting anything like an outline of the book, but it should be noted that one chapter is devoted to a record of Trudeau's association with the well-beloved Robert Louis Stevenson, who was a patient at Saranac Lake from October 3, 1887, to April 18, 1888; and here Stevenson wrote some of his essays. We cannot, however, part from this fascinating volume without venturing on a quotation from the closing paragraphs, and which indicates in Trudeau's own words something of the spirit and purpose of this brave pioneer and self-sacrificing physician: "As I look back on my life, ever since that day in 1866 when my brother came to me sick at Newport, tuberculosis looms up as an ever-present and relentless foe. It robbed me of my dear ones, and brought me the first two great sorrows of my life; it shattered my health when I was young and strong, and relegated me to a remote region, where ever since I have witnessed its withering blight laid upon those about me, and stood at the death-beds of many of its victims whom I had learned to love. Of late it has condemned me to years of chronic invalidism, helplessness, and physical misery and suffering. And yet the struggle with tuberculosis has brought me experiences and left me recollections which I could never have known otherwise, and

¹ "An Autobiography." By Edward Livingston Trudeau, M.D. Pp. 322, with portrait frontispiece and plates. Philadelphia and New York: Lea and Febiger, 706, 708, 710, Sansom Street, Philadelphia, and 2, West 45th Street, New York, U.S.A. 1916. Price \$2.00 net.

which I would not exchange for the wealth of the Indies! While struggling to save others, it has enabled me to make the best friends a man ever had. From my patients who have recovered I have learned much, and this contact with them has brought me rewards which are priceless to me now. To look about me on those whom I have helped in the hour of need, and, even though in a very slight degree, to have been instrumental in restoring many to health and active lives of usefulness, and to feel daily their gratitude of love, is a joyful heritage indeed, which endures in a world where all else passes away, and which brings some contentment and peace in hours of physical misery and discouragement. To see the Sanitarium, which I have taken part in creating, daily extending a helpful hand to hundreds at a time when help may mean health, cheering, saving and restoring life, is indeed a reward far above all material rewards the world has to offer. But there are other experiences, which relate to those patients at whose bedside I have stood, who have undergone long years of enforced physical and mental suffering, and often grinding poverty as well, while they fought a fight which was from the first doomed to be a losing one for them; and their experiences have shown me glimpses of the spiritual in man, and brought me a larger and more precious message than even the gratitude and affection of those who have recovered. From these I have learned that the conquest of Fate is not by struggling against it, but by acquiescence; that it is often through men that we come to know God; that spiritual courage is of a higher type than physical courage; and that it takes a higher type of courage to fight bravely a losing than a winning fight, especially if the struggle from the first is evidently a hopeless one, and is protracted for years. . . . And now that my life, like this little book, is near its end, and both are a tale that is told, I am looking back quietly over the long years which have passed so quickly. Dr. Richard Cabot, to whom my gratitude, as well as that of many others, is due for writing his last book, tells us convincingly that the things men live by are 'work and play, and love and worship.' Well, if this be true—and it surely is—I have indeed had a full life; full of the joy of play, and the struggle and zest of work, and overwhelmingly full of human love—a wealth of love which has endured, and is still making life precious to me every hour; full of the aspirations and ceaseless strivings of the spirit for expression in worship, ever groping to know God, and ever sustained through long periods of gloom by too swiftly fading glimpses of the Heavenly Vision. Certainly all this is to live, and I have lived a full life and must be content to await patiently the end of the great Mystery of Existence, clinging to the faith to which I have ever clung, surrounded by good friends, and cheered by all the recollections of everything life has brought me and the great lessons it has taught me, which make the sunset for me glow with unusual warmth and brilliancy. After all, I can truly say: 'With their triumphs and their glories and the rest, Love is best.'

T. N. KELYNACK, M.D.

ALCOHOL AND ALCOHOLISM.

In 1907 Dr. Kelynack, in association with a number of well-known medical experts, issued a comprehensive work on "Alcohol and Alcoholism." Under the editorship of Dr. Kelynack, "The Drink

Problem of To-Day" has just appeared.¹ This book is not merely a reissue of the collection of essays published in 1907. Neither is it to be viewed as a new edition brought up to date. The editor has wisely recognized that to fairly represent present-day conditions a new book had, practically, to be written. The present work consists of a series of articles written by different people—all experts in their own particular branch of the subject. Thus, to mention only a few, we have Professor Sims Woodhead dealing with the Pathology of Alcoholism, Dr. Mary Scharlieb treating on Alcoholism as it relates to Women and Children, and Sir Thomas Whittaker on the vexed question of Alcoholism and Legislation. There are fourteen contributors to this excellent and representative volume. Doubtless the parts of the book which deal with Alcoholism and Tuberculosis will chiefly interest the readers of this journal, and it is no doubt perfectly true to say that alcoholism is a cause of tuberculosis. The malign trio—poverty, alcoholism, and tubercle—are inextricably entwined, and it is difficult sometimes to tell which is cause and which effect. There is not the least doubt that alcoholism is an important contributory influence in the causation of tuberculosis, and, moreover, that it very seriously prejudices the sufferer's chances of recovery. As a means of treatment, alcohol has been practically abandoned. With regard to the use of alcohol in the management of pneumonia of an influenzal type, a series of cases published some few years ago seemed to show that alcohol in any form was definitely harmful. No social reformer can doubt that a most excellent opportunity, and one that is not likely to recur again, has been lost by the lack of drastic legislation by the Government, and of effective action by local authorities, who had it in their power to enforce the necessary emergency legislation. But so far no adequate measures of restriction have been applied. Amongst schemes suggested for dealing with the alcohol problem are—(1) Disinterested Management, for which there are many arguments and influential advocacy, and (2) State Purchase. The arguments in favour of this last procedure certainly seem to hold the field at the present time. Dr. Kelynack's book deserves the careful study of all medical practitioners interested in the study of medico-sociological problems and concerned to safeguard the highest interests of the Commonwealth.

JANE WALKER, M.D.

TUBERCULOSIS OF THE RESPIRATORY TRACT.

Sir StClair Thomson has recently issued a new and second edition of his very complete and lavishly illustrated standard text-book on the "Diseases of the Nose and Throat."² The work is the most up-to-

¹ "The Drink Problem of To-Day in its Medico-Sociological Aspects," edited by T. N. Kelynack, M.D., Hon. Secretary of the Society for the Study of Inebriety, Editor of *The British Journal of Inebriety*. Pp. xii + 318. London: Methuen and Co., Ltd., 36, Essex Street, W.C. 1916. Price 7s. 6d. net.

² "Diseases of the Nose and Throat; Comprising Affections of the Trachea and (Esophagus)." A Textbook for Students and Practitioners. By Sir StClair Thomson, M.D., F.R.C.P., F.R.C.S., Commander of the Order of Leopold of Belgium, Surgeon for Diseases of the Throat and Professor of Laryngology in King's College Hospital, Laryngologist to King George Hospital and to King Edward VII. Sanatorium, Midhurst. Second Edition. Pp. xvi + 858, with 22 plates and 337 figures in the text. London: Cassell and Co., Ltd. 1916. Price 25s. net.

date and practical of the many somewhat similar works written for students and practitioners. The first edition appeared more than four years ago, and during this short period rhino-laryngology has made conspicuous progress. The book has been revised throughout, and a description has been introduced of suspension-laryngoscopy, the latest development in clinical methods for the direct inspection of the larynx. Particulars are also given of so-called nerve-blocking designed to procure laryngeal anaesthesia. A new section has been added on intranasal dacryocystotomy, an operation which promises much in the relief of a number of troublesome conditions of the lachrymal apparatus. The wealth of illustrations has been added to by a number of excellent reproductions of radiograms. The book throughout is based on personal experience, and the author has aimed to make it a serviceable guide to senior students and a reliable and helpful volume of reference for busy practitioners. The work is of special interest and value to those called to deal with tuberculous affections involving the respiratory passages, two elaborate chapters being devoted to a detailed account of lupus and tuberculosis of the upper air-passages and laryngeal tuberculosis. These sections are well illustrated and plentifully supplied with references. The introductory paragraph provides so excellent a summary that we make no excuse for quoting it: "Tubercle bacilli usually attack the body either through the respiratory tract or the alimentary canal. It seems well founded that in adults the former is the most usual route, and it would appear that it is the more common of the two channels in children. But, in the majority of instances, the defensive mechanisms of the nose and throat prevent the invading organism from securing a local foothold. Tubercle bacilli have certainly been found in the nostrils of healthy individuals, and this suggests that they must often be arrested at the very threshold; for in the nose itself their inoculation only leads to the manifestation of disease in its most mitigated form—viz., that of lupus. The rapidly progressive tuberculosis we so often meet with in the larynx is practically unknown in the nasal cavities. In the pharynx we find both the attenuated form of the disease (*i.e.*, lupus) and the acute miliary. In the larynx active tuberculosis is much more common than the chronic form. The lungs are still more frequently the seat of progressive tuberculosis. In other words, the defences of the nose are so complete that acute tuberculosis hardly ever occurs there, and the lower down the infection of the air-tract, the more virulent is the process." Evidently Sir StClair is not enamoured by tuberculin. In dealing with the treatment of tuberculosis of the larynx, he cautiously states, "The treatment by tuberculin injections is still a much-discussed subject, and readers are referred to current literature," but there is immediately added the personal record: "After careful experience of it in a sanatorium of 100 beds, during a period of five years, I have come to the conclusion that there is no evidence that it results in any decided benefit." There is no need for a lengthy review of this notable volume, for it is one which should be in the possession of every medical practitioner. There is an excellent collection of formulæ. The index is extensive and has been scientifically prepared. Finally, a word of praise is due to the publishers for the handsome way in which the work has been produced; paper, type, illustrations, and general get-up, are all of the best.

A STUDY OF INTERNAL SECRETIONS.

Modern investigations regarding the internal secretions and the action of the so-called ductless glands have thrown much new light on physiological and pathological processes. We have long held that there was much need for research into the influence of internal secretions in the predisposition to, and development and progress of, tuberculous disease. Here is a promising field for inquiry which might well be taken up in the pathological laboratories of our leading sanatoria. To stimulate such work we earnestly advise a study of Sir Edward Schäfer's new work on the endocrine organs.¹ The work is the outcome of the Lane Medical Lectures delivered at Stamford University, California, in the summer of 1913. The author formulates his aim thus: "To supply a concise account of our present knowledge for the benefit of students and practitioners who may be desirous of obtaining more information regarding the internal secretions than is afforded by the ordinary textbooks of physiology, but have not the time or opportunity to peruse extensive monographs or consult original articles." Needless to say, the work has been carried through in a masterly manner and fully accomplishes the author's purposes. Sir Edward opens with a general survey of the endocrine organs and their secretions. The specific substances of these latter he would designate *autacoids*. "An autacoid is a specific organic substance formed by the cells of one organ and passed from them to the circulating fluid to produce effects upon other organs similar to those produced by drugs. Such effects are either in the direction of excitation, in which case the endocrine substances producing them are *excitatory autacoids*, and would come under the expression *hormones*, or in the direction of restraint or inhibition, in which case they are *restraining* or *inhibitory autacoids*, and would be classed as *chalone*s. The action of an autacoid may therefore be described as *harmonic* or *chalone*, according to the kind of effect it produces." In a series of chapters there are described and discussed the secretions of the thyroid and parathyroids, the thymus, the suprarenal capsules, the pituitary body, and the pineal gland. There are also chapters dealing with the internal secretions of the alimentary mucous membrane and of the pancreas, and the internal secretions of the generative organs of both the male and the female. The knowledge of the whole subject is new and necessarily limited, but Sir Edward has succeeded in placing facts and theories in as lucid a form as is at present possible. The clearness of the exposition is admirably served by a large number of excellent illustrations and reproductions of tracings. The work is one which every scientific pathologist and physician should study with care.

ACUTE INFECTIOUS DISEASES.

Physicians called to deal with such a chronic infectious disease as tuberculosis should make a point of keeping themselves well acquainted with the advance of knowledge respecting the management of cases of so-called acute infectious diseases. We therefore earnestly commend

¹ "The Endocrine Organs: An Introduction to the Study of Internal Secretion." By Sir Edward A. Schäfer, LL.D., D.Sc., M.D., F.R.S., Professor of Physiology in Edinburgh University. Pp. ix + 156, with numerous illustrations. London: Longmans, Green and Co., 39, Paternoster Row, E.C. 1916. Price 10s. 6d. net.

the admirable treatise written by Professor Frank Sherman Meara.¹ In the ordinary college curriculum the details of therapeutics occupy but a limited place. Dr. Meara has succeeded in producing a work which will be of immense service to all practitioners of the healing art. In a series of thirty-five chapters the chief acute infectious diseases are dealt with. Each chapter is a complete study of an individual disease viewed from the standpoint of the practical physician. Details are dealt with explicitly, and in a way which will enable the procedures advocated to be effectively carried out. Throughout a strictly scientific spirit is maintained. Unnecessary references to authorities are avoided, and much care has been taken to give accurate dosage and detailed formulæ. There is a helpful summary at the end of each section which the busy practitioner will appreciate. There is no section on tuberculosis, although leprosy has a chapter to itself. The book is excellently arranged, and both author and publishers have successfully co-operated in presenting the substance of the work in a form which is effective and highly convenient for rapid reference. This practical work should be popular on both sides of the Atlantic.

MANUALS FOR MEDICAL ADVISERS AND WORKS OF REFERENCE.

The last issue of the Transactions of the American Climatological and Clinical Association contains a number of communications of interest to students of the tuberculosis problem.² The following merit mention: "The Effect of Changes in Atmospheric Conditions upon the Upper Respiratory Tract," by Drs. J. A. Miller and G. H. Cocks; "The Importance of the Personal Equation in the Treatment of the Tuberculous," by Dr. W. H. Swan; "Some of the Anatomic-Pathologic Problems in Tuberculosis," by Dr. F. M. Pottenger; and "The Relation of the Spleen to Tuberculosis and Fat Solvents," by Dr. W. C. White. An article on "Heliotherapy in Colorado," by Dr. C. F. Gardiner, is accompanied by some instructive illustrations of tuberculous and other cases undergoing sun treatment. Here are the conclusions: "Heliotherapy is now on a firm, scientific basis, and will prove of value in treating pulmonary tuberculosis if used with caution and patience. Advanced cases and those of the extreme blond type will occasionally respond favourably to sun-baths. In Colorado the sunshine can be used with regularity, and the effect is enhanced by the large percentage of actinic rays, while the dry air on the skin tends to protect the body from heat exposure." There is a short bibliography.

Dr. A. E. Shipley rendered in the early months of the war a national service by the issue of his practical little manual on "The Minor Horrors of War." This admirable handbook now possesses a sequel

¹ "The Treatment of Acute Infectious Diseases." By Frank Sherman Meara, M.D., Ph.D., Professor of Therapeutics in the Cornell University Medical College in New York City, Attending Physician to Bellevue Hospital, New York, etc. Pp. vii + 540. New York: The Macmillan Company. 1916. Price 15s. net.

² Transactions of the American Climatological and Clinical Association for the Year 1915. Edited by Guy Hinsdale, M.D., Hot Springs, Virginia, U.S.A. Vol. xxxi. Pp. xxxi + 210. London: John Bale, Sons and Danielsson, Ltd., 83, Great Titchfield Street, W. 1915. Price 10s. post free.

or companion.¹ It consists for the most part of a reprint of articles which have appeared in the *British Medical Journal*. The subjects dealt with are cockroaches, the bot or warble-fly, the mosquito, the yellow-fever mosquito, the biscuit "weevil," the fig-moth, the stable-fly, rats, and the field mouse. The work is one which sanitary officers and medical practitioners, both in private practice and naval and military service, will know how to appreciate, but the presentation is so lucid and informing that any reasonable man or woman will find the book profitable reading. Dr. Shipley is a master of style, and his volume is not only a scientific manual of high merit, but a work which is as fascinating as a collection of adventures in English literature. The illustrations are numerous and excellent. We particularly commend this monograph to the notice of superintendents of sanatoria, for they will find in it much of practical value to assist them in their duties.

The attention of superintendents of sanatoria and medical practitioners in country districts should be directed to a highly suggestive and informing manual² on certain problems of agriculture, which has been written by Mr. A. D. Hall, one of the Commissioners under the Development Act, 1909. It throws much light on the question of increased production of food at home and greater employment of men upon the land, subjects closely bound up with the problem of the prevention and arrest of tuberculosis. The book is a masterly exposition and a constructive contribution to the literature of war problems.

The second edition of the "Encyclopædia Medica"³ is being issued under the general editorship of Dr. J. W. Ballantyne. Vol. III. has recently appeared and deals with subjects from Chloroform to Dyspnoea. The table of contents indicates that there are no less than forty-six principal articles, and we have made no attempt to count the numerous short notes. Among the communications likely to be of special interest to readers of this journal are Dr. Robert W. Felkin's study of Climate and Acclimatisation, Dr. Robert Hutchison's presentation of Diet, Dr. Carstairs C. Douglas's exposition of Disinfection, and Dr. Harry Rainy's paper on Dyspnoea. The work is in every way a notable one, the paper is good, the illustrations well selected, and the general get-up entirely worthy.

"The Medical Annual"⁴ for 1916 fully maintains its size and interest and rightly deserves its position as *the* Year Book of Treatment and Practitioners' Index. The work is now in its thirty-fourth year. Very properly war subjects have prominence. Tuberculosis, however, is dealt with in various sections. Dr. Charteris gives references and summaries of papers on tuberculosis. He quotes Solis Cohen as confirming Latham's contention that oral administration of tuberculin can

¹ "More Minor Horrors," by A. E. Shipley, Sc.D., Hon. Sc.D., Princeton, F.R.S., Master of Christ's College, Cambridge, and Reader in Zoology in the University. Pp. xiv+163, with frontispiece and 49 illustrations. London: Smith, Elder and Co., 15, Waterloo Place. 1916. Price 1s. 6d. net.

² "Agriculture After the War," by A. D. Hall, F.R.S. Pp. vii+137. London: John Murray, Albemarle Street, W. 1916. Price 3s. 6d. net.

³ "Encyclopædia Medica," under the general editorship of J. W. Ballantyne, M.D., C.M., F.R.C.P.E. Second edition. Vol. III.: Chloroform to Dyspnoea. Pp. 672. Edinburgh and London: W. Green and Son, Ltd., 2 and 4, St. Giles Street, Edinburgh, and 23, Fleet Street, London, E.C. 1916. Price 20s.

⁴ "The Medical Annual: A Year Book of Treatment and Practitioners' Index." Pp. cxii+919, with plates and illustrations. Bristol: John Wright and Sons, Ltd. 1916. Price 10s. net.

be used therapeutically. Dr. Lewis A. Conner furnishes useful abstracts of articles on pulmonary tuberculosis, and gives special reference to the use of tuberculin and the employment of artificial pneumothorax. Dr. F. Langmead has an excellent account of the progress of the study of tuberculosis in childhood. Mr. J. W. Thomson Walker is responsible for the section on urinary tuberculosis. The volume contains a list of sanatoria for consumption and other forms of tuberculosis. The plates and illustrations are numerous and add much to the value of the annual. Lengthy notice is superfluous, for the work is one which no medical practitioner can afford to be without.

Many works are now being issued regarding first-aid and the principles and practice of bandaging. A very practical manual of the use of the triangular bandage has just been published, and should be known to all doctors, nurses, and V.A.D. workers.¹ Its text is concise and lucid, and the numerous illustrations provided make everything from beginning to end as plain and practical as is possible. Mr. Preston's handbook is the best exposition on the use of the triangular bandage.

The prevention and management of bed-sores call for serious consideration in all cases of disease where patients have to be kept in the recumbent position. The subject of bed-sores is one which is ever in the thoughts of a good nurse. And medical superintendents, matrons, and all responsible for the care of chronic subjects of disease, such as long-standing cases of tuberculous disease must ever be alive to the importance of prophylactic and therapeutic measures relating to the care of the bed-fast. A thoroughly practical little manual on bed-sores has been written by the Matron of Waddington Hospital, and merits commendation.² It is just the little advisory handbook which doctors will find useful to recommend to those on whom falls the burden of nursing in domiciliary cases, and doubtless many commandants of V.A.D. workers will be glad of such a guide as Mrs. Smart's sensible brochure.

"Medical Homes for Private Patients" is now in its eleventh year of issue, and forms a convenient directory which medical advisers will know how to appreciate.³ It contains names and addresses of medical homes in London and the provinces, a list of the chief homes for chronic, incurable, and aged cases, names of convalescent and accouchement homes, and centres where Weir Mitchell and rest cures can be carried out. There are also references to homes for mental and inebriate cases. The directory to sanatoria for consumptives and other tuberculous subjects would be improved by revision and amplification. There is a useful list of institutions supplying trained nurses. A serviceable feature is the summary of health resorts and establishments. The last

¹ "The Triangular Bandage: The Application of the Triangular Bandage shown by Words and Diagram." By Howard M. Preston, Demonstrator of the Practical Classes at the Polytechnic, Regent Street, in connection with the St. John Ambulance Association and the British Red Cross. With an Introduction by James Cantlie, M.A., M.B., F.R.C.S. Pp. viii+62, with 116 figures. London: John Bale, Sons and Danielsson, Ltd., Oxford House, 83-91, Great Titchfield Street, Oxford Street, W. 1916. Price 1s. net.

² "Bed-Sores: Their Prevention and Cure." By Catherine W. Smart, Matron of Waddington Hospital, Waddington, Yorkshire. Pp. 52. London: John Bale, Sons and Danielsson, Ltd., Oxford House, 83-91, Great Titchfield Street, Oxford Street, W. 1916. Price 1s. net.

³ "Medical Homes for Private Patients, 1916: A Classified Directory with Alphabetically-arranged Lists of Medical Consultants." Edited by R. Pritchard Binnie. Pp. 167. Aberdeen: The University Press. 1916. Price 6d. net.

sixty-four pages are devoted to alphabetically arranged and classified lists of consultants. This *multum in parvo* will be of practical service to all branches of the healing art, and is certainly a manual which must be kept at hand for ready reference.

A new and fifty-second edition has just appeared of Fry's well-known "Guide to London Charities."¹ This indispensable reference-book, in spite of war and all its alarms and derangements, still maintains its effectiveness and up-to-date features. This year's issue contains a good summarizing and advisory preface, and the substance of the volume has evidently been revised with judgment and sound knowledge.

Under the designation of "The South Downs," the London, Brighton and South Coast Railway has issued a particularly fascinating guide to the upland country running through Kent, Surrey, and Sussex.² Particulars are given of geological and other natural features. There is a chapter on the South Downs in literature, and plenty of interesting particulars regarding the country as it exists to-day. On and around the South Downs are many delightful centres for the health-seekers. Medical advisers and others desirous of guidance in the selection of natural sanatoria should procure a copy of this charming little volume, which, it should be added, is effectively illustrated with reproductions of drawings in colour and excellent photographs.

The prevalence of tuberculosis of the lungs among South African natives working in mines is receiving attention, and a preliminary report on the subject has recently been issued.³

Dr. H. Hyslop Thomson's recently issued report as County Tuberculosis Officer for Hertfordshire is a valuable record of good work carried on in this leading Home County amidst the many difficulties incident to days of war.⁴

¹ "Herbert Fry's Royal Guide to the London Charities," showing in alphabetical order their name, date of foundation, address, objects, annual income, chief officials, etc., according to their latest reports. Together with an Appendix of Special Announcements of the Principal Metropolitan Hospitals and Charitable Institutions. Edited by John Lane. New and Revised Edition (the fifty-second). Pp. lxvi + 331. London: Chatto and Windus, 111, St. Martin's Lane, W.C. 1916. Price 1s. 6d.

² "The South Downs: Being the story of some wanderings with an eye to their natural features, the beauties of their curves and colourings, their woodlands and flowers, their little villages and quiet towns, their ancient industries and solitary men, their mighty earthworks and quaint churches, their place in song and story, their association with famous men and great deeds, and of many other things that go to make up their manifold charms, together with practical hints as to the best and easiest ways of reaching the most interesting places, the finest view-points, and of exploring the recesses from appropriate centres." By The Tramp. Illustrated in colour from drawings by S. T. C. Weeks, and from photographs. Pp. 82, with diagram map. Published by the London, Brighton and South Coast Railway, London Bridge Station (William Forbes, General Manager). 1916. Price 7d. and 1s. 3d. (postage 1½d. and 3½d. respectively).

³ "A Preliminary Inquiry into the Prevalence of Pulmonary Tuberculosis among Mine Natives." By W. Watkins-Pitchford, M.D., F.R.C.S., A. J. Orenstein, M.D., and W. Stewart, M.R.C.S., L.R.C.P. Pp. 9. Johannesburg: Argus Printing and Publishing Company, Ltd. 1916.

⁴ "Third Annual Report on Tuberculosis in the County of Hertford for the Year 1915." By H. Hyslop Thomson, M.D., D.P.H.

PREPARATIONS AND APPLIANCES.

A SANATORIUM BED-REST.



THE "PRINCESS
CHRISTIAN" BED-
REST.

In all hospitals and sanatoria, and for the effective nursing of patients in their own homes, an effective and convenient bed-rest is an essential. Miss Todd has designed an excellent form which has been placed on the market under the designation of the "Princess Christian" BED-REST.¹ It is simple and neat in form, collapsible and portable, and so easily carried or stored, and the structure is so arranged that the head and shoulders can be supported at any angle. The framework is of wood, and the supporting medium is of canvas. A cushioned foot-rest is also provided and is easily adjusted, and can be arranged for patients of any height by lengthening or shortening the attached girths. The whole bed-rest can be easily cleaned or disinfected. It should be noted that if placed on a rug or waterproof on the garden lawn or sea-beach, or on the deck of a ship, it provides a comfortable support or lounge which anyone who once tries it will know how to appreciate. This valuable appliance should prove popular in all sanatoria, and the attention of doctors and nurses may well be directed to its many advantages.

A FIRST-AID OUTFIT.



THE NURSE'S FIRST-AID OUTFIT,
"TABLOID" BRAND.

In these days of trial and testing, skill and means for the rendering of first aid should always be available. Messrs. Burroughs, Wellcome and Co. have introduced an excellent series of FIRST-AID OUTFITS. We would particularly draw attention to "The Nurse's First-Aid 'Tabloid' Brand Outfit."² The chief features of this compact, convenient, and effective equipment are indicated in the accompanying figure. It is just the collection of essentials which will be likely to be of service to a nurse engaged in district or other professional work. The following are the contents of the case: "Tabloid" bandages and dressings, "Vaporole" aromatic ammonia, for use as "smelling salts," "Borofax," Carron oil (solidified), jaconet, plaster, protective skin, a camel-hair brush,

¹ The Improved "Princess Christian" Bed-Rest can be obtained from the inventor, Miss Laura E. Todd, M.R.B.N.A., 33, St. Olave's Road, Clifton, York. The price complete with foot-rest is 18s. 6d.

² The Nurse's First-Aid "Tabloid" Brand Outfit (No. 708) is supplied by Messrs. Burroughs, Wellcome and Co., Snow Hill Buildings, Holborn, London, E.C. Price 6s. 6d., or with webbing-strap 6d. extra.

pins, etc., and two tubes of "Tabloid" and "Soloid" brand products. The case measures $6\frac{5}{8} \times 3\frac{1}{8} \times 2$ inches, and can be arranged so that it can be attached to a waist-belt or to a bicycle handle-bar. It is available in rex red, Royal blue, or Imperial green enamelled metal or in aluminized metal.

THE "SISTER LOUISE" ICE-CUP.

The administration of ice is often a desirable measure in the management of hæmoptoic cases. A convenient form of receptacle for ice which can be kept by the patient's bedside will be found in the "SISTER LOUISE" ICE-CUP.¹

This appliance, the chief features of which are shown in the annexed figure, possesses several advantages which will be appreciated both by nurses and patients. The old method of keeping ice suspended on flannel or lint, tied over a cup or basin for purposes of drainage, is often attended with the drawbacks of adhesion of fluff or hairs to the ice, and dripping from the edges of the flannel, while a certain wastage of ice results from the retention of the water in the improvised cover or strainer; and the adjustment and tying on of the cover occupies time. All this is avoided by employing the Louise ice-cup, by which perfect drainage and cleanliness are secured. The ice-cup consists of a perforated saucer fitting over a deep cup, which receives the moisture from the ice, while the shape of the perforated bowl enables the ice to be taken as required, with ease and convenience. These advantages will be particularly evident when ice is ordered to be sucked, and the moderate first expense of the ice-cup will be found to be compensated by the saving in flannel and lint, and in ice itself, as also in time and trouble.



THE "SISTER LOUISE" ICE-CUP.

A NEW SURGICAL SPRAY.

Mr. Frank A. Rogers, whose enterprise and inventiveness in introducing sprays for medicinal purposes is well known, is now supplying a ROGERS' SURGICAL SPRAY² which has many advantages, and is certain to be appreciated in sanatorium work as well as in hospital and private practice. It has been specially designed to allow of the use of such medicaments as tincture of iodine and perchloride of mercury. The spray possesses the following advantages: It renders possible the use of antiseptic media which tend to dry rapidly; it offers ready means for the application of a small quantity of solution over a large area; the spray can be directed precisely where it is wanted, and may be directed into all parts of the wound; the antiseptic is not wasted as when poured into a wound or used on sponges or swabs; a number of patients may be treated in succession without danger of carrying infection from one to another; it is simple in construction and can be readily prepared for sterilizing, and separate parts can easily be renewed.

¹ The "Sister Louise" Ice-Cup is supplied by Messrs. Down Brothers, Ltd., 21 and 23, St. Thomas's Street, London, S.W.

² The Rogers' Surgical Spray is supplied complete, price 4s. 6d., postage in the United Kingdom. Full particulars can be obtained from Mr. Frank A. Rogers, 327, Oxford Street, London, W.

THERAPEUTIC AND PHARMACEUTICAL PREPARATIONS.

"MALTO-YERBINE" is a preparation which has proved of real service in the treatment of a number of pulmonary diseases. It affords much relief in catarrhal conditions of the respiratory passages. In not a few cases of tuberculosis of the respiratory organs its administration has resulted in considerable benefit. It contains the essential therapeutic principles found in the Yerba Santa (*Eriodictyon Californicum*), associated with plain "Maltine" in the proportion of 30 grains to the fluid ounce. In California Yerba Santa has long been known as "Mountain Balm" and "the Consumptive's Plant," and its resinoid elements certainly seem to act as a stimulating and liquefying expectorative, and prove beneficial in suitably selected cases. A thorough trial under scientific precision is certainly desirable.¹

Recurrent catarrh, or Hay Fever, is a condition which at this time of the year gives rise to considerable discomfort among certain patients undergoing open-air treatment. Medical superintendents of sanatoria would do well to make themselves acquainted with the POLLEN TOXIN VACCINE and TEST OUTFIT now provided by Messrs. Allen and Hanburys.²

Under the designation of "FILM" Messrs. William Browning and Co. are manufacturing an excellent emulsion of purified liquid paraffin, with iodine, lecithin, and malt. It is a preparation which, at this time of the year especially, tuberculous patients will appreciate.³

At this season of the year sick patients in hospitals and sanatoria and healthy persons elsewhere often suffer considerable discomfort from the raids of midges, mosquitoes, sandflies, and the like. All such should provide themselves with a bottle of "MUSCATOL."⁴ A very convenient means for its economic and effective application is by Rogers' MUSCATOL SPRAY. "Muscatol" is a well-attested prophylactic, and has been employed with highly satisfactory results in all parts of the world. It is a preparation which might well be sent to our men in Egypt, Mesopotamia, and other places in the war zones. "Muscatol" is a colourless liquid with pleasant odour, free from greasy constituents, harmless to the hair, skin, and clothes, and most efficacious.



¹ Specimens and particulars of "Malto-Yerbine" will be supplied to medical practitioners on application to The Maltine Manufacturing Company, Ltd., 183, Acton Vale, London, W.

² The Pollen Toxin Ophthalmic Test Outfit, with seven tubes of graduated strengths and with apparatus for instillation, costs 5s. 6d.; the Pollen Toxin Vaccine, for hypodermic injection, 4, 20, 100, or 500 units, is supplied at 1s. 6d. per tube. Full particulars regarding the prophylaxis and treatment of Hay Fever by Pollen Toxin may be obtained from Messrs. Allen and Hanburys, Ltd., 7, Vere Street, Cavendish Square, W., and 37, Lombard Street, London, E.C.

³ Specimens of "Film" and particulars will be sent to medical superintendents of sanatoria and other medical practitioners on application to Messrs. William Browning and Co., "Semprolin" Works, 4, Lambeth Palace Road, London, S.E.

⁴ "Muscatol" is supplied post free in the United Kingdom for 1s. 2d. a pocket bottle. The Rogers' Muscatol Spray is 4s. 6d., postage in the United Kingdom 3d. extra. A form of Veterinary Muscatol is now available. Full particulars regarding "Muscatol" can be obtained on application to Mr. Frank A. Rogers, 327, Oxford Street, London, W.

THE OUTLOOK.

TUBERCULOSIS IN LONDON.

THE last Report of Dr. W. H. Hamer, the Medical Officer of Health for the County of London, throws much light on the tuberculosis problem as it relates to the Metropolis of the Empire.¹ The London deaths from phthisis, including acute miliary tuberculosis, during 1914 (52 weeks) numbered 6,281, as compared with 5,981 in 1913 (53 weeks). Since the year 1910 the deaths from phthisis belonging to the London population have been more completely ascertained than in previous years; and further the deaths from phthisis include deaths from miliary tuberculosis, which previously had been included under general tuberculosis. These two circumstances in conjunction disturb the continuity of the phthisis death-rates, but it is unfortunately not possible to determine with any certainty from the published figures of the Registrar-General whether, or to what extent, the increase in the death-rate in 1911 denotes an actual increase in the mortality in that year over 1910. The more accurate local distribution of deaths would not, however, affect the rate for England and Wales as a whole; and from the fact that the increase shown in this rate (exclusive of miliary tuberculosis), in 1911 over 1910, in the Annual Report of the Registrar-General for 1911 amounted to 4.6 per cent., it is reasonable to suppose that there was a corresponding actual increase in mortality in London. The increase due to the addition of miliary tuberculosis to phthisis in England and Wales is found from the same source to be 2.3 per cent. There has been a marked decline of phthisis mortality in both sexes since about 1865, with a greater incidence of such mortality on males than on females, and until recent years the decline has been more manifest among females than males. The accompanying table shows the crude phthisis death-rates, and the rates corrected for differences in the age and sex constitution of the populations of the various sanitary districts. The factors for correction, also shown in the table, have been calculated by applying the 1911 census population, at each age and for each sex, of each of the London sanitary districts, to the death-rates, at each age and for each sex, obtaining in England and Wales during the decennium 1901-1910.

It will be seen from the table (comparing the corrected death-rates) that among the several sanitary districts, in the quinquennium 1909-13 and in the year 1914, Finsbury (1.99 and 1.98) and Shoreditch (1.86 and 2.20) respectively had the highest phthisis death-rates and Hampstead (0.57 and 0.58 respectively) the lowest. The death-rates from phthisis in London in each of the four quarters of the year 1914 were as follows: first quarter, 1.58; second quarter, 1.28; third

¹ London County Council: Annual Report of the Council, 1914. Vol. III, Public Health (including the Report of the County Medical Officer of Health and School Medical Officer, Main Drainage, Housing of the Working Classes). Pp. 155, with Charts. London: P. S. King and Son, Ltd., 2 and 4, Great Smith Street, Victoria Street, Westminster, S.W., 1916. Price 2s. 6d.; post free 2s. 11d.

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quarter, 1·23; and fourth quarter, 1·48. The figures upon which the table is based, so far as the years since 1910 are concerned, are those given in the Annual Summaries of the Registrar-General, which represent the deaths of Londoners occurring within the Greater London area. During the year 1911 the system of compulsory notification of

Metropolitan Borough.	Factor for Correction for Age and Sex Distribution.	Crude Death-Rate.		Corrected Death-Rate.		Comparative Mortality Figure. (London 1,000.)	
		1909-13.	1914.	1909-13.	1914.	1909-13.	1914.
London ...	0·9628	1·33	1·39	1·28	1·34	1,000.	1,000
Paddington ...	0·9198	1·05	1·02	0·96	0·94	750	701
Kensington ...	0·9217	0·99	1·10	0·91	1·01	711	754
Hammersmith ...	0·9510	1·21	1·38	1·15	1·31	898	978
Fulham ...	0·9779	1·32	1·31	1·29	1·28	1,008	955
Chelsea ...	0·9151	1·37	1·35	1·26	1·24	984	925
Westminster,							
City of ...	0·8422	1·25	1·33	1·05	1·12	820	836
St. Marylebone ...	0·8932	1·33	1·28	1·19	1·14	930	851
Hampstead ...	0·9021	0·63	0·64	0·57	0·58	445	433
St. Pancras ...	0·9322	1·55	1·77	1·45	1·65	1,133	1,231
Islington ...	0·9573	1·29	1·45	1·24	1·39	969	1,037
Stoke Newington ...	0·9329	0·96	1·15	0·90	1·07	703	799
Hackney ...	0·9730	1·28	1·36	1·24	1·32	969	985
Holborn ...	0·8577	2·07	1·97	1·78	1·69	1,391	1,261
Finsbury ...	0·9976	2·00	1·98	1·99	1·98	1,555	1,478
London, City of ...	0·8219	1·62	1·12	1·33	0·92	1,039	687
Shoreditch ...	1·0270	1·81	2·14	1·86	2·20	1,453	1,642
Bethnal Green ...	1·0436	1·58	1·65	1·65	1·72	1,289	1,284
Stepney ...	1·0282	1·69	1·70	1·74	1·75	1,359	1,306
Poplar ...	1·0222	1·42	1·67	1·45	1·71	1,133	1,276
Southwark ...	0·9786	1·86	1·76	1·82	1·72	1,422	1,284
Bermondsey ...	1·0123	1·74	1·63	1·76	1·65	1,375	1,231
Lambeth ...	0·9548	1·38	1·42	1·31	1·36	1,023	1,015
Battersea ...	0·9829	1·23	1·26	1·21	1·24	945	925
Wandsworth ...	0·9627	0·89	0·90	0·85	0·87	664	649
Camberwell ...	0·9902	1·27	1·43	1·26	1·42	984	1,060
Deptford ...	0·9820	1·32	1·38	1·29	1·36	1,008	1,015
Greenwich ...	1·0040	1·20	1·38	1·21	1·39	945	1,037
Lewisham ...	0·9693	0·69	0·75	0·67	0·73	523	545
Woolwich ...	0·9781	1·27	1·40	1·24	1·37	969	1,022

pulmonary tuberculosis was completed, and it was in operation during the whole of 1912. This scheme was begun on January 1, 1909, as the outcome of the Public Health (Tuberculosis) Regulations, 1908, issued by the Local Government Board on December 18 of that year. These Regulations provided for the notification of cases of pulmonary tuberculosis by Medical Officers of Poor Law Institutions, District Medical

Officers, Superintending Officers of Poor Law Institutions and Relieving Officers. The respective duties of these officers in connection with notification are prescribed in Articles IV. to VIII. of the Regulations. Further Regulations were made on March 22, 1911, extending the system of notification to cases occurring among the in-patients or out-patients at hospitals, or other similar institutions for the treatment of the sick, which are supported wholly or partially otherwise than by the contributions of the patients (or of their relatives or guardians) and otherwise than from rates and taxes. These Regulations are described as the Public Health (Tuberculosis in Hospitals) Regulations, and came into force on May 1, 1911. A further stage in the development of notification of pulmonary tuberculosis was reached on the issue of the Local Government Board Order of November 15, 1911. This Order provided that from January 1, 1912, every medical practitioner should notify within 48 hours every case of pulmonary tuberculosis occurring in the course of his public or of his private practice, but it relieved the medical practitioner of the duty of notifying a case which had to his knowledge already been notified to the proper authority. The Order was not a consolidating Order, but supplemented and to some degree extended the Poor Law and Hospital Regulations. These three Orders were consolidated, and extended to apply to all forms of tuberculosis, by a new Order of the Local Government Board dated December 19, 1912, which came into force on February 1, 1913. Under this Order the Council has made the summary return of cases of tuberculosis notified in the County of London in 1914 (52 weeks).

In classifying the returns of notifications received from the Borough Councils for the purpose of this summary, care has been taken to follow as far as possible the International List of Causes of Death adopted by the Registrar-General in 1911; and the notifications should therefore be comparable with the deaths in London from "pulmonary," and from "other tuberculosis," respectively.

In 1909 the Local Government Board made an Order requiring the notification of phthisis occurring in Poor Law practices, and in March, 1911, the requirement of notification was extended to hospitals, dispensaries and similar institutions. In November of the same year a further Order was made requiring every medical practitioner, from January 1, 1912, to notify such cases within forty-eight hours. Thus from the latter date a complete system of notification of the disease has been in force. Under these Orders the Metropolitan Borough Councils are required to send weekly to the County Council a return of the notifications received, and from these returns it has been possible to learn, in some degree, the extent of the disease among inmates of common lodging-houses. Since 1909 until the end of the year 1914, a total of 1,138 cases of the disease in the common lodging-house population has been notified. Of this total, 1,069 were males and 69 females. The age distribution of 1,117 of these cases was as follows:

5-	10-	15-	20-	25-	35-	45-	55-	65 and up.
2	1	10	26	170	301	361	202	44

It has been possible in 961 cases to interview the patients, and information was obtained as to whether their illness began before or after they had resorted to this mode of living. The results were as follows: In 344 cases the onset of the disease was stated to have

Form of Tuberculosis Notified.		Sex.	Notifications on Form A. (Total of primary notifications received in London boroughs, other than elementary school cases, <i>in/100</i> .)											
			0 -	1 -	5 -	10 -	15 -	20 -	25 -	35 -	45 -	5+ -	Age not not Stated.	Total.
Pulmonary tuberculosis	...	M.	31	177	486	429	630	891	2,007	2,140	1,581	712	203	9,297
		F.	25	157	421	500	572	883	1,797	1,378	780	332	200	7,047
Other tuberculosis	...	M.	144	441	520	290	155	92	136	69	58	32	12	1,949
		F.	121	361	379	275	168	121	145	98	42	19	20	1,749
All forms of tuberculosis	...	M.	175	618	1,006	719	785	983	2,143	2,209	1,639	744	215	11,246
		F.	146	518	800	775	740	1,004	1,942	1,476	822	351	220	8,796

Form of Tuberculosis Notified.		Sex.	Notifications on Form B. (Primary notifications of cases discovered through medical inspection in elementary schools.)					Notifications on Form C. (Secondary notifications from institutions receiving cases.)		
			0 -	5 -	10 -	15 +	Total.	Poor Law.	Other.	
Pulmonary tuberculosis	...	M.	3	26	28	—	57	3,183	1,956	
		F.	2	34	30	—	66	1,250	1,029	
Other tuberculosis	...	M.	4	54	22	1	81	348	83	
		F.	2	48	32	1	83	203	62	
All forms of tuberculosis	...	M.	7	80	50	1	138	3,531	2,039	
		F.	4	82	62	1	149	1,453	1,091	

commenced prior to entering on a common lodging-house life; in 80 cases it was practically coincident with entry; in 155 cases the disease first manifested itself within three years of such life; in 71 cases in from three to five years; in 141 cases in from five to ten years; in 121 cases in from ten to twenty years; in 49 cases after more than twenty years of common lodging-house life; thus in nearly half the total number the disease must have been already acquired before the common lodging-house environment could possibly have had any influence upon its development. The place of birth in 297 of the cases was stated to be outside London.

The circumstances which led to the Council making provision for the treatment of tuberculosis in London were briefly that (a) the results of the investigation of the Departmental Committee on Tuberculosis, which issued two reports in 1912 and 1913 respectively, and (b) the requirement of compulsory notification of sufferers under the Tuberculosis Regulations, 1912, established the necessity for public provision for dealing with the disease. The Council first accepted a grant from the Government under Section 64 of the National Insurance Act, 1911, which enabled it to enter into agreement with the Metropolitan Asylums Board for the treatment of insured persons at Downs Sanatorium, Sutton, and at the Northern Hospital, Winchmore Hill. Subsequently an amending Act passed in 1913 repealed the provision in the original Act of 1911, which prevented the London Insurance Committee from making direct arrangements with the Metropolitan Asylums Board for the treatment of insured persons. Under the amending Act such direct arrangements may be made subject to the concurrence of the County Council. The Council concurred, and the London Insurance Committee made their own arrangements with the Metropolitan Asylums Board. The Council ceased to have any responsibility in respect of insured persons on March 31, 1914. With regard to the general community, the Local Government Board invited the Metropolitan Borough Councils to prepare schemes for the treatment of sufferers and the examination of suspects and contacts at dispensaries, and they also invited the Council to formulate a complete scheme for London which would embody the work to be done locally through the dispensaries and include the County Council as the authority for residential treatment. First, as to dispensaries, the Council decided to make grants in aid of the expenditure of Borough Councils on dispensary schemes to the extent of 25 per cent. of the cost of dealing with uninsured persons, provided the schemes complied with certain regulations which were adopted by the Council in November, 1913. These were set out on p. 226 of vol. iii. of the Annual Report of the Council, 1913, and were subsequently embodied in the Council's Tuberculosis Scheme for London approved by the Council on May 26, 1914. Shortly stated, the principal of these provide (a) that the scheme shall include treatment of both insured and uninsured persons; (b) that the premises and tuberculosis officers shall be approved by the Council; (c) that the dispensary shall be linked to a hospital for the purpose of determining diagnosis in difficult cases; (d) that records, forms and statistics shall be in the form required by the Council; (e) that the Council shall be supplied with reasonable information as to the work of the dispensary; (f) that home visitation and examination of contacts and suspects shall be provided for; (g) that the scheme shall be conducted with reasonable economy and that the

accounts shall distinguish clearly between the cost of insured and uninsured persons; and (h) that the arrangements and expenditure shall be annually submitted to the Council for its approval. At the end of 1913 qualified approval of two dispensary schemes (Southwark and Chelsea) had been given. By the end of the year 1914 schemes had been received from 25 Borough Councils, and 15 had been approved. Of the 25 schemes, 7 had been in operation for varying periods prior to the adoption of the Council's scheme, and 6 others were either fully or partially working at the end of the year; 10 schemes were then still the subject of negotiation, and 4 boroughs had not submitted their proposals. One of the principles governing the policy of the Council in respect of their approval of dispensary schemes and of provision for residential accommodation is that wherever possible existing institutions should be used. In the various boroughs the following dispensary accommodation has been provided or is proposed: *Municipal*, Deptford, Finsbury, Greenwich, Hammersmith, Hampstead, Southwark, Wandsworth; *Hospital*, City of London, Chelsea, Hackney, Holborn, Islington, Shoreditch, Stoke Newington, Westminster; *Municipal and Hospital*, Lambeth; *Voluntary and Hospital*, St. Pancras; *Voluntary*, Poplar; *Central Fund*, Battersea, Bermondsey, Camberwell, Fulham, Stepney, Woolwich; and *Central Fund and Hospital or Borough*, Kensington, Paddington, St. Marylebone. With regard to the general scheme for London, attention was directed during 1914 to the arrangements for residential treatment and to the linking up thereto of the local dispensaries so as to secure the smooth transfer of suitable cases from the care of the dispensaries as in-patients to hospitals or to sanatoria and *vice versa* on completion of the in-patient treatment. On the question of the provision of beds, it will not be possible to estimate with any degree of accuracy the number required until the dispensary schemes have had time to get fully into operation. It might be possible to arrive at a reliable figure if the accommodation needed were dependent only upon the notifications under the Tuberculosis Regulations, 1912, which are dealt with elsewhere in this report, as it is probable that the number of cases notified has now reached a level which provides an annual average of cases coming under notice as a result of medical advice being sought by persons experiencing definite signs of illness. Dispensary schemes, however, provide for the examination of "contacts" of notified sufferers, and it may therefore be expected that later there will be an increase in the number of cases detected in the early stages of the disease, *i.e.*, the type of case most suitable for sanatorium treatment. Having regard to the fact that the Council is only concerned in providing residential accommodation for uninsured persons, it has been taken that for adults 160 hospital beds and 240 sanatorium beds may be regarded as sufficient initial provision, excluding advanced cases. It has been recognized throughout that these cases present a separate and distinct problem. In dealing with the question of the sanatorium accommodation required for children it has to be borne in mind that the problem of the treatment of tuberculous children presents special features, some of which are referred to in the section of this annual report dealing with the work of the school medical officer. The important factors in dealing with children are (1) the question of education; (2) the position of the day school for physically defective children established under the Elementary Education (Defective and Epileptic Children) Act, 1899,

more particularly for surgical cases; (3) the question of the open air day school attached to the local dispensary for children in attendance there for treatment, the majority of whom would be pulmonary cases. As to education, the Council has decided that children capable of receiving education during their stay in residential institutions shall be sent only to institutions recognized by the Board of Education under the Elementary Education (Defective and Epileptic Children) Act, 1899. Day schools for physically defective children under the Education Act of 1899 have already been extensively established in London, and experience has shown the type of case most suitable for these institutions. The matter is consequently largely one of the selection of suitable cases. The development of the open air day school for medical cases requires special consideration, and an attempt is being made to deal with the matter on experimental lines with a view to determining the type of tuberculous child most suitable for treatment at such an institution. Having regard to these considerations it has been suggested that, as an initial provision, 350 beds for surgical cases and 150 beds for pulmonary and gland cases would be sufficient. On the question of the provision of the accommodation required both for adults and children the Council was during the year in negotiation with the Metropolitan Asylums Board. The negotiations were not completed at the end of 1914, but by the courtesy and co-operation of the London Insurance Committee it was found possible for the Board temporarily to place at the disposal of the Council 15 sanatorium beds for women at the Northern Hospital, Winchmore Hill, which had been allotted to the Insurance Committee, and these have been used by the Council since December 11, 1914, and the Metropolitan Asylums Board were also able to allot to the Council 13 beds for children at Queen Mary's Hospital, Carshalton. In addition to the negotiations with the Metropolitan Asylums Board correspondence was opened with hospitals and sanatoria with a view to ascertaining the extent to which they would be able to meet the additional needs. It was pointed out to them that the Council in seeking accommodation desired to avoid the displacement of patients suffering from any disease including tuberculosis who would otherwise be received under existing arrangements. In other words, that the Council wished to supplement existing provision by paying for beds for patients who, under existing conditions, would be unable to secure appropriate treatment. As the result of these negotiations it was found that, under normal conditions, the Council would have been able to obtain all the beds required at hospitals as initial provision at the rate of 30s. per bed per week and 20s. per bed per week for children. On the outbreak of war, however, the hospitals found themselves unable definitely to allot beds for the sole use of the Council. Many of them expressed themselves willing to take patients from time to time as vacancies occurred, the beds reverting to the hospital on the discharge of the patient concerned. In this way it was possible to arrange at hospitals for the few hospital beds required during the short period of 1914 the scheme was in operation. Four patients were admitted to hospitals, viz., two adults and two children. Of these, two were subsequently sent to sanatoria and two were discharged. As to sanatoria, it was found that there was insufficient suitable accommodation within a reasonable distance of London, and it was only possible at the end of 1914 to contract for 30 beds for adults, viz., 20 at Maltings Farm

Sanatorium, Suffolk, and 10 at Fairlight Sanatorium, Hastings, in addition to the 15 beds for women at the Northern Hospital, Winchmore Hill, already mentioned. The number obtained, however, proved to be sufficient for the demands made upon the Council during this period. A considerable number of additional beds has since been obtained, and at the time of writing they are all occupied. With regard to the children's beds, arrangements were completed with the under-mentioned institutions for the specified numbers of beds:

National Children's Home, Harpenden	-	-	10 beds.
East Anglian Children's Sanatorium, Nayland	-	-	50 beds.
Alexandra Hospital for Children with Hip Disease	-	-	20 beds.
Queen Mary's Hospital, Carshalton	-	-	13 beds.
Fleet Sanatorium, Hampshire	-	-	5 beds.
Victoria Home for Invalid Children, Margate	-	-	5 beds.

At the end of 1914 it transpired that 8 men and 33 women and 87 children had been sent to sanatoria by the Council. Of these, 10 adults and 18 children had been discharged at the end of the year, leaving 6 men, 25 women and 69 children under treatment on December 31, 1914. In their own interests and on grounds of public health it is desirable that advanced cases should be removed from their homes, but much hardship would be caused if they were taken to large institutions at considerable distance from their homes, so that their friends would be unable to visit them. It is therefore felt that these patients should remain as near as possible to their homes. It is thought that the provision of medical treatment under the National Insurance Act will tend to reduce the number of persons in infirmaries, and it has been suggested that some of the displaced accommodation in infirmaries might be transferred from the Poor Law for this purpose. Much attention has been given to the question of linking up the dispensaries with the various local agencies for the relief of sufferers from tuberculosis and with the arrangements for residential treatment. The medical officers of health of the metropolitan boroughs are required under the Tuberculosis Regulations, 1912, to make inquiries into environmental conditions of all notified cases, and they have power to arrange for the improvement of unsuitable conditions and for the prevention of the spread of infection. Their inquiries enable them to ascertain whether sufferers are receiving adequate attention, and, where dispensary schemes are in operation, to secure attendance at the dispensary of suitable cases and of contacts and suspects. It is contemplated that in course of time general practitioners will seek the services of the dispensary medical officers for the purpose of consultation. In the case of children the activities of the school care committees not only lead to the acquisition of much useful information, but afford channels for obtaining appropriate assistance auxiliary to medical treatment. The experience of the last few months has shown the desirability of centralizing these various activities, with a view to economy of energy and to the prevention of duplication of visiting, and proposals for this purpose were under consideration at the end of the year. In the meantime the services of the borough medical officers of health, the Invalid Children's Aid Association, and the school care committees have been utilized in connection with the arrangements for residential treatment. One of the initial problems which faced the Council in undertaking the

provision of residential treatment for uninsured persons was the question of determining the type of case suitable for the various kinds of institution treating sufferers, particularly as to the line of demarcation between "hospital" and "sanatorium" cases, and as to what constitutes an "advanced" case. Another matter of difficulty was the procedure to be adopted for the admission of patients to residential institutions. This was one of the matters referred to the Advisory Board appointed under the Council's scheme. Pending the preparation of the standard classification of the Advisory Board and the appointment of dispensary care committees, the following procedure has been adopted for dealing with cases requiring residential treatment: 1. A clinical report form (known as form A) is filled up by the physician or surgeon recommending the case and referred by him to the medical officer of health of the borough. 2. Form A is forwarded by the borough medical officer of health to the county medical officer of health, together with a report (form B) by the borough medical officer of health on environmental conditions. 3. These reports are examined by the county medical officer of health, and if the cases are passed for treatment a vacancy is offered to the patient, if an adult, through the borough medical officer of health, who obtains the signed consent of the patient to treatment and "after care." In the case of children, in addition to forms A and B, reports are obtained from the school care committee or Invalid Children's Aid Association, who also obtain the consent of the parents to treatment and an undertaking to submit the child to "after care" on discharge. 4. In the event of the county medical officer of health desiring a further medical opinion before accepting a case for residential treatment, arrangements are made for the patient to be seen by a medical referee at the offices of the public health department. The judgment of the referee is not subject to clinical review by the Council. The referee is also to be consulted if there is difficulty in determining the relative urgency of a number of cases awaiting treatment. In 1914 four cases were referred to referees, and two of them were sent to hospitals. The other two were offered treatment in hospital and refused. 5. Due notice is given to the borough medical officer of health of the date of discharge of a patient in order that suitable arrangements may be made for his "after care," and a medical report on the patient's condition on discharge is supplied to the borough medical officer of health. 6. In the case of children notice of discharge is also supplied to the school care committee, and if the case is recommended by the Invalid Children's Aid Association they are also informed. Arrangements are made for the case to be kept under the special observation of the school medical officer.

In the last annual report of the Council, particulars were given of various decisions at which the Council had arrived on points of principle in connection with the provision of tuberculosis treatment. These were co-ordinated in a general scheme which was approved by the Local Government Board. In accordance with the wishes of the Board, the scheme was prepared on the basis that dispensary treatment should be provided by the City Corporation and Metropolitan Borough Councils, and that the Council should be responsible for residential treatment. The Council had already decided to accept financial responsibility only for the residential treatment of persons who are not insured under the National Insurance Acts. The

treatment of insured persons was placed in the hands of the London Insurance Committee by the National Insurance Act, 1911, and to provide greater facilities to enable that committee to discharge its obligations in this direction, the Council, under its powers under Section 39 of the National Insurance Act, 1913, gave its consent to direct arrangements being made by the Insurance Committee with the Metropolitan Asylums Board for the treatment of insured persons in the Board's institutions. Until the passing of the latter Act the Insurance Committee had been prohibited from having any direct dealings with the Board because of the latter's position as a Poor Law authority. The Council, in formulating its scheme for the treatment of tuberculosis throughout the county, was animated by the desire to make the fullest possible use of the many agencies already available for treating the sick, and, in particular, so to frame the scheme as to insure the co-operation of the great London hospitals. The object of the scheme was to link up existing agencies and others still to be created so that they would act as a complete whole, and to provide that the patient's progress might be adequately supervised from the time he first developed tuberculosis until the treatment applicable to his case had been completed, and even beyond this period by the provision of after care. The Council desired to avoid the possibility of its funds being utilized simply to supersede those previously contributed through the medium of charitable organizations, and to expend the funds at its disposal, so far as possible, in encouraging the provision of fresh accommodation or in securing the keeping open of accommodation which was otherwise in danger of being withdrawn. It decided that it would not itself purchase, erect, or maintain institutions. The Council's scheme prescribes the machinery by which the comprehensive treatment of tuberculosis is to be secured. Dispensary treatment both for insured and uninsured persons will be provided by the local sanitary authorities, and towards this expenditure the Council will contribute, so far as uninsured persons are concerned, amounts not exceeding 50 per cent. of the cost which would otherwise fall on the funds of the local authority, after taking into account the Government grant of 50 per cent. of the total expenditure incurred. The conditions under which these grants will be given were set out in the last annual report,¹ and are embodied in the scheme. Residential treatment for uninsured adults and for children will be provided by the Council, and for insured persons by the London Insurance Committee. In order to overcome the difficulty which the Council anticipated would arise from the fact that recommendations for provision of residential treatment would be received from a large number of medical men in various parts of the county who would quite conceivably be working to different standards, provision was made for the appointment of an advisory board consisting of representatives of hospitals, dispensaries and sanatoria. The principal functions of this board are to assist in securing some uniformity in standard in the selection of patients for the several kinds of residential treatment and to appoint, either from their own number or from outside, a rota of physicians to act as medical referees and to examine all cases referred to them by the county medical officer. The scheme provides that the cost of the appropriate treatment of insured persons shall be borne by insurance funds, and that no part of such expenditure shall be defrayed

¹ Annual Report of the London County Council, 1913, vol. iii., pp. 226, 227

out of the county rate. The cost of the residential treatment of uninsured persons in institutions other than those of the Metropolitan Asylums Board will be borne by the Council, provided that in all cases in which a patient, or the person responsible for the patient, is in receipt of an income of £160 a year or over, and the circumstances of the case appear to justify it, a charge may be made for the treatment received. The Metropolitan Asylums Board has agreed to receive into its institutions and to treat at the cost of its own funds uninsured tuberculous patients sent by the Council. The Local Government Board in approving the Council's scheme expressed its regret that the Council had not agreed to undertake to provide the accommodation required for the needs of the whole population of the county, insured and uninsured. The Board also raised certain minor points with regard to the clauses relating to the payment by patients and the fees to be paid to medical referees. The Council proceeded to secure accommodation for the provision of residential treatment, and estimated that 160 hospital beds, 240 beds in sanatoria and 150 beds for children, would be required for the current year. These beds were, as far as possible, to be taken in existing accommodation which was not being utilized. At the same time, the Metropolitan Asylums Board was asked whether it would place 100 existing beds at the Council's disposal and provide 150 beds as an initial provision in new sanatoria. Great difficulty was experienced in the first instance in obtaining any considerable amount of residential accommodation, and this difficulty was greatly accentuated after the outbreak of war. The number of applications, however, which were received for residential treatment fell below the number which had been anticipated, and, in spite of the scarcity of accommodation, the Council was able in the case of adults to keep pace with the demand, and in the case of children to keep the numbers on the waiting list from becoming considerable. The scheme did not contemplate the provision by the Council of accommodation for advanced and chronic cases. In this connection, the Council was advised that at the time of the approval of the scheme there were in Poor Law institutions in London about 2,300 tuberculous persons, most of whom were suffering from the disease in an advanced stage, and of whom about 86 per cent. were not insured under the National Insurance Act. It was obvious that if the Council were to make considerable provision for cases of the type referred to, a large number of persons who could receive or were receiving suitable treatment in infirmaries would be transferred to the new provision made by the Council, and that no advantages would accrue which would be in any way commensurate with the very considerable additional expenditure which would be thrown on the county rate. The Council therefore approached the Metropolitan Asylums Board with a view to ascertaining whether the Board were prepared to accept responsibility for such cases. The Board informed the Council that it proposed to consider the question in conference with the Local Government Board, as it was of opinion that some re-arrangement of accommodation should be possible which should prevent the need for providing new institutions. At the close of the year under review no decision had been arrived at. Several schemes for the provision of dispensary treatment were received during the year, and the Council approved those in respect of the metropolitan boroughs of Chelsea, Deptford, Fulham, Holborn, Kensington, Lambeth, Paddington, Poplar, St. Marylebone, Southwark, and

Wandsworth. During the year the Council, under its powers conferred by Part 4 of the London County Council (General Powers) Act, 1907, continued to examine samples of milk forwarded to London from places outside the county. The number of samples taken was 2,925. Of these, examinations of 2,839 were completed, of which 224 were found to be tuberculous; 354 farms outside the county were visited, and 10,109 cows were examined, of which 52 were found to be tuberculous. The owners of the defective animals undertook that the use, for human consumption, of the milk from the animals should be discontinued immediately. At the beginning of the year in review the Tuberculosis Order of 1913 was in force. This Order provided for the notification to the Council, as local authority, of any cases in the county (exclusive of the City of London) in which any cow was or appeared to be suffering from any chronic disease of the udder, or any bovine animal which was or appeared to be suffering from tuberculosis with emaciation. Provision was made under the Order for seizure and slaughter of animals so affected and for the payment of compensation to the owners of such animals. Under these powers, 19 animals were seized and slaughtered, and sums amounting to £79 13s. 9d. were paid to the owners as compensation. On July 1, 1914, however, this Order was superseded by the Tuberculosis Order of 1914, which varied the conditions under which animals were to be valued for compensation purposes, and also varied to some extent the conditions under which an animal might be seized, but owing to the war the operation of this Order was suspended as from August 6, 1914. During the period in which it was in operation 4 cows were seized, and £28 15s. was paid as compensation to the owners.

TUBERCULOSIS AND THE WAR.

The Local Government Board issued an Order on May 13, 1916, altering the Public Health (Tuberculosis) Regulations, 1912, so as to require Medical Officers of Health to furnish to the Army Council particulars of all male persons between certain specified ages who have been notified since February 1, 1913, as suffering from tuberculosis. The object of the Order is to assist the Army Council in securing that men suffering from tuberculosis are not enlisted into the Army, and the Board are confident that local authorities and their officers will readily co-operate in supplying the required particulars. The operations of the Order is limited to the duration of the present war. The Board suggest that it will no doubt be convenient for the Medical Officer of Health to prepare his weekly list for transmission to the Army Council at the same time as the weekly statement of notifications which is required to be sent to the County Medical Officer of Health under Article XI. (3) of the Regulations of 1912. All information received in pursuance of the Order is to be regarded by every person who has access thereto as confidential, and any expenses incurred by a Medical Officer of Health in carrying out the duties imposed by the Order are to be defrayed by the local authority. The lists required must be sent under Article II., and should be forwarded by post in a sealed envelope (which need not be stamped) addressed to "The Secretary, War Office, Whitehall, London, S.W.," and marked "O.H.M.S."